

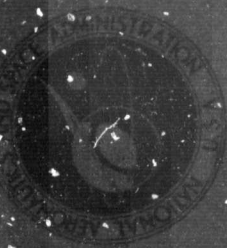
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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ADMINISTRATION



(NASA-TM-85328) MICROCIRCUIT RADIATION  
EFFECTS LATABANK (NASA) 418 F FC A18/MF A01  
CSCI C9C

N83-24771

GC/33  
Unclass  
11672



Computer Management Branch

Goddard Space Flight Center

Greenbelt, Maryland

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MICROCIRCUIT RADIATION EFFECTS DATABASE

FEBRUARY 1983

PREPARED BY: SPERRY DATA MISSION  
PARTS BRANCH, CODE 311  
PRODUCT ASSURANCE DIVISION  
NASA/GODDARD SPACE FLIGHT CENTER  
GREENBELT, MD 20771

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## INTRODUCTION

THE PURPOSE OF THIS DATABASE IS TO COLLATE RADIATION TEST DATA SUBMITTED BY MANY TESTERS AND TO SERVE AS A REFERENCE FOR ENGINEERS WHO ARE CONCERNED WITH AND HAVE SOME KNOWLEDGE OF THE EFFECTS OF THE NATURAL RADIATION ENVIRONMENT ON MICROCIRCUITS. IT CONTAINS RADIATION SENSITIVITY RESULTS FROM GROUND TESTS AND IS DIVIDED INTO TWO SECTIONS. SECTION A LISTS TOTAL DOSE DAMAGE INFORMATION, AND SECTION B LISTS SINGLE EVENT UPSET CROSS SECTIONS, I.E., THE PROBABILITY OF A SOFT ERROR (BIT FLIP) OR OF A HARD ERROR (LATCHUP).

MANY USERS AND TESTERS IN THE AEROSPACE COMMUNITY WERE SOLICITED TO SUBMIT APPROPRIATE DATA WHICH WAS GENERATED SINCE 1975. DATA WERE REVIEWED AND REFORMATTED AS PRESENTED HEREIN SO THAT ALL DATA WOULD APPEAR IN A UNIFORM MANNER, AND TO IDENTIFY AND EMPHASIZE SIGNIFICANT DETAILS. THERE WAS NO FURTHER REDUCTION OR ANALYSIS OF DATA PERFORMED OTHER THAN TO CALCULATE THE MEAN AND STANDARD DEVIATION VALUES. IF THE DATA WERE NOT ALREADY SO PRESENTED. MUCH OF THE DATA RECEIVED WAS QUESTIONABLE OR OF UNCERTAIN WORTH BECAUSE OF POOR PART IDENTIFICATION OR BECAUSE DETAILS OF THE TEST CONDITIONS WERE INCOMPLETE. CLEARLY MANY TESTS WERE CONDUCTED TO ANSWER VERY SPECIFIC QUESTIONS, SUCH AS WHETHER A DEVICE WAS STILL FUNCTIONAL AFTER A GIVEN DOSE. ALTHOUGH SOME OF THE DATA SUBMITTED WAS NOT USABLE, IF IT APPEARED TO HAVE ANY UTILITY AT ALL, IT WAS INCLUDED, EVEN THOUGH EVENTUAL USERS MIGHT HAVE SOME QUESTIONS. SOME BACKTRACKING TO THE SUBMITTERS OF DATA WAS DONE IN ORDER TO VALIDATE OR CLARIFY AMBIGUOUS DATA, BUT SCHEDULE AND FUNDING LIMITED HOW MUCH OF THIS COULD BE DONE.

A FINAL COMMENT IS THAT IT IS ASSUMED THAT THE USER OF THIS DATABASE HAS SOME EXPERIENCE IN, AND UNDERSTANDING OF, RADIATION EFFECTS ON MICROCIRCUITS. WHEN THE UNCERTAINTIES OF DATA VALIDITY OR COMPREHENSIVENESS NOTED ABOVE ARE COUPLED WITH THE WIDELY KNOWN VARIATIONS IN PRODUCT HARDNESS (DUE TO DIFFERING MANUFACTURING PROCESSES AND TO THE EFFECTS OF MINOR CHANGES WITHIN A PROCESS), CAUTION SHOULD BE USED IN INTERPRETING THE DATA FOR USE IN A GIVEN APPLICATION. A LAYMAN IN THE FIELD ASSUMES SOME RISK IF THESE DATA ARE SUPERFICIALLY APPLIED, OR ARE MISAPPLIED BY NOT CONSIDERING THE VARIATIONS POSSIBLE IN THE MANUFACTURED PRODUCT IN ITS CIRCUIT APPLICATION AND IN ITS USE ENVIRONMENT. THIS CAVEAT IS ESPECIALLY TRUE FOR THE SINGLE EVENT UPSET DATA OF SECTION B. THE UPSET LATCHUP RATES GIVEN FOR EACH DATA SET ENTRY (RECORD) ARE NOT THE TRUE DEVICE ERROR RATES. RATHER, SEVERAL DATA SETS MAY BE NECESSARY TO DETERMINE THE THRESHOLD LEVEL FOR DEVICE INFORMATION. THAT INFORMATION, TOGETHER WITH A DETAILED BREAKDOWN OF THE COSMIC RAY SPECTRUM, MUST THEN BE FOLDED INTO AN ANALYTICAL MODEL IN ORDER TO FINALLY DETERMINE THE ACTUAL ERROR RATES FOR THE DEVICE IN A GIVEN APPLICATION ENVIRONMENT (ORBIT).



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DEFINITION OF SYMBOLS

ANGLE	INCIDENT ANGLE (IN DEGREES) OF PARTICLE BEAM ON DEVICE UNDER TEST; REFERENCE IS NORMAL TO THE PLANE OF THE CHIP
ANOM	ANOMALOUS
AR	ARGON
AVG	AVERAGE
BIAS (SINGLE EVENT UPSET SECTION)	SUPPLY VOLTAGE VALUE DURING IRRADIATION
BIAS (TOTAL DOSE SECTION)	SUPPLY VOLTAGE VALUE AND INPUT/OUTPUT CONTROL CONTROLS DURING IRRADIATION
CO-60	COBALT-60
CONT	CONTINUED
CUM. DOSE (RAD'S)	CUMULATIVE TOTAL ABSORBED DOSE IN RAD'S
D (PARAMETER)	DELTA (CHANGE) IN PARAMETER
DATA SOURCE	NAME OF COMPANY WHICH PERFORMED TESTS
"(DITTO)	REPETITION OF DATA ABOVE SYMBOL
EL	ELECTRONS
ENERGY	ENERGY OF THE INCIDENT PARTICLE BEAM
ERROR CROSS SECTION	TEST UPSET RATE IN UPSET/PARTICLE/SQ. CM./(MEMORY) BIT
ER	(METAL) EVAPORATION RUN
FLUENCE	NUMBER OF PARTICLE INCIDENT ON THE DEVICE UNDER TEST AND USED IN COMPUTING THE CROSS SECTIONS FOR A DATA SET (RECORD)

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FUNCTION	APPLICATION PURPOSE
GENERIC PART NUMBER	BASIC PART TYPE OF NUMERICAL ORDER
GND	GROUND
ION	IDENTIFICATION OF CHARGED PARTICLE AS TO ELEMENT TYPE
IRRAD	IRRADIATION
K	POWER OF 10 RAISED TO THE 3
KR	KRYPTON
LATCH CROSS SECTION	TEST LATCHUP RATE IN LATCH/PARTICLE/SQ. CM./CHIP
LDC	LOT DATE CODE: DATE OF MANUFACTURE OF FABRICATION LOT FIRST 2 NUMBERS: YEAR LAST 2 NUMBERS: WEEK OF YEAR E.G.: 7912 = 12TH WEEK OF 1979
MANUFACTURER	MANUFACTURING COMPANY OF TEST GROUP
MEAN	MEAN VALUE OF TEST GROUP FOR MEASURED PARAMETER
MEG	POWER OF 10 RAISED TO THE 6
MEV	MILLION ELECTRON VOLTS
N	NEUTRONS
N/C	NO CONNECTION
NE	NO ERRORS
(N) FAIL: (N) FAL (N) F	PARAMETER WAS NOT WITHIN SPECIFICATION FOR N (A NUMBER) OF DEVICES
NL	NO LATCHUPS

NO. OF PARTS	NUMBER OF DEVICES USED IN COMPUTING CROSS SECTIONS
(N) PASS. (N) PAS.	PARAMETER WAS WITHIN SPECIFICATION FOR N (A NUMBER) DEVICES
(N) P	
N/SQ CM	NEUTRONS PER SQUARE CENTIMETER
O	OXYGEN
+OR	OUT OF RANGE IN THE POSITIVE
P+	PROTON
PARAMETERS	LISTING OF SPECIFIC PARAMETERS MEASURED
PART NUMBER	FULL PART IDENTIFICATION NUMBER
PART QTY.	NUMBER OF DEVICES IN TEST GROUP
PREV	PREVIOUS
RADS	ABSORBED DOSE
RAD TYPE	TYPE OF IRRADIATION SOURCE
REC	RECORD
RECORD	DATABANK FILE NUMBER FOR DATA SET
REF. NO.	CATALOGUE REFERENCE NUMBER OF SOURCE DATA
RUNS	NUMBER OF INDIVIDUAL TEST RUNS USED IN COMPUTING CROSS SECTIONS FOR A DATA SET (RECORD)
SD	STANDARD DEVIATION VALUE OF TEST GROUP FOR MEASURED PARAMETER
SPECIFICATION	PROCUREMENT SPECIFICATION IDENTIFICATION
TECHNOLOGY	MANUFACTURING PROCESS
TYP	TYPICAL
UNK	UNKNOWN
X-	LESS THAN X
X+	MORE THAN X

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MICROCIRCUIT RADIATION EFFECTS DATABASE  
SECTION A: TOTAL DOSE TESTS

SORT: GENERIC PART TYPE; RECORD ID NUMBER

\*\*\*\*\*  
 GENERIC PART NUMBER: 0002  
 \*\*\*\*\*  
 FUNCTION: BIPOLAR  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 25-1 40  
 CURRENT AMPLIFIER: 40

\*\*\*\*\*  
 MANUFACTURER: NSC  
 PART NUMBER: LH0002H  
 SPECIFICATION: AEROJET  
 DATA SOURCE: AEROJET

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 7718 CO-60 5 UNK.

\*\*\*\*\*  
 CUM. DOSE (RADS): 0  
 18K 100K 420K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 VIO 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 VO+ (MAX) 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 VO- (MAX) 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 IIO 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 IS 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 G 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 ZOUT 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 0002  
 \*\*\*\*\*  
 FUNCTION: HYBRID  
 TECHNOLOGY: HYBRID  
 REF. NO. RECORD: 805-14 580  
 CURRENT AMPLIFIER: 580

\*\*\*\*\*  
 MANUFACTURER: NSC  
 PART NUMBER: LH0002  
 SPECIFICATION: TI  
 DATA SOURCE: TI

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 7921 CO-60 10 UNK.

\*\*\*\*\*  
 CUM. DOSE (RADS): 0  
 12.5K 25K 50K 100K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 -VDS 11.50 5.201 11.85 5.212 11.38 5.218 11.66 5.210 11.37 5.206  
 IOS .540 .705 .496 .720 .620 .731 .899 .754 1.261 .849

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
0032	ULTRA FAST OP AMP	FET	1035	5370

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LH0032		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7950	CO-60	5	V+=15V; V=-15V.

CUM.DOSE(RADS):		0		50K		100K		200K		500K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOS	MV	2.460	0.329	2.22	0.563	2.320	0.311	1.920	0.585	1.590	0.472	
IOS	PA	-0.60	7.995	6.240	9.802	6.600	17.09	43.60	65.36	-81.8	243.9	
IB	PA	-31.6	45.85	-139.	43.33	-321.	43.62	-856.	56.90	-3362	355.2	
AVOL(1KHZ)	DB	64.92	0.763	64.92	0.763	64.60	0.969	64.34	0.981	63.84	0.915	
+SLEW	V/US	381	30	NSC*	NSC*	NSC*	NSC*	NSC*	NSC*	374	18	
-SLEW	V/US	355	16	NSC*	NSC*	NSC*	NSC*	NSC*	NSC*	343	13	

REMARKS: \* NSC = NO SIGNIFICANT CHANGE FROM PREVIOUS VALUE.

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
0033	AMPLIFIER	BIFET	24-2	20

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LH0033	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
7913	CO-60	8	V+=15V, V-(-)15V, INPUT=5V

CUM.DOSE(RADS):		0		30K		100K		300K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D IOS	MA			-0.525	.406	0.363	2.292	12.03	35.71	
D IIB	NA			-37.5	24.49	-36.7	24.69	-31.7	25.09	
D GAIN (1V)				-0.016	0.031	0.006	0.031	0.006	0.031	
D GAIN (4V)				-0.007	0.023	0.003	0.005	-0.004	0.014	
D GAIN (9V)				0.002	0.001	0.002	0.001	0.001	0.001	

REMARKS:

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MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
PMI	REFO2		TI

CUM. DOSE (RADS):		0		12.5K		25K		50K		100K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
LOAD	REG	2.083	.0763	2.133	.0949	2.333	.0331	2.275	.1099	2.283	.1033
VO	V	5.002	.0051	5.004	.0061	5.005	.0061	5.009	.0068	5.010	.0074
LINE	REG	4.150	.5320	4.550	.5357	5.533	.5698	6.317	1.222	7.283	2.125

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
04	COMPARATOR	BIPOLAR	805-17	610

LDC	RAD.	TYPE	PART QTY.	BIAS
7924	C0-60		3	UNK.

CUM. DOSE (RADS):		0		12.5K		25K		50K		100K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
(IB+)	*	28.5	7.937	75.5	8.404	146.6	14.10	332.1	45.3	770.0	121.5
(IOS)	*	-733	1.173	1.588	2.169	8.467	6.827	37.96	14.43	157.8	24.3
YOS	MV	-021	5.198	0.425	.5519	3450	.5969	1.774	.7240	6.008	1.039
SINK	MA	6.333	.2462	8.550	.3572	7.108	.4100	5.258	.4358	3.226	.1984

REMARKS: \*NEGATIVE OF PARAMETER VALUE WAS USED TO CONSERVE SPACE.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
07	OPERATIONAL AMP.	BIPOLAR	401-5	60

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
PMI	QP-07		INSAT PCC 860

LDC	RAD. TYPE	PART QTY.	BIAS
JUNK.	CO-60	5	V+=+7.5V, V-=7.5V (DURING IRRAD. & ELECT. TESTS).

PARAMETERS	O		1MEG		LIMITS*	
	MEAN	SD	MEAN	SD	MEAN	SD
VOS			.9800	28.94	75.0	
IB+	NA		17.74	11.86	3.0	
IB-	NA		17.82	11.96	3.0	
IDS	NA		.6800	.4324	2.8	

REMARKS: \*IN THIS COLUMN ARE THE MANUFACTURER'S SPECIFIED LIMITS.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
07	OP AMP	BIPOLAR	1010	5090

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
P. M. I.	0p-07EJ		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7951	C0-60	5	V+=15V, V=-15V, VIN=IV(P-P) 1KHZ. RIN=10K. *

CUM. DOSE (RADS) :		0		50K		100K		300K		1MEG	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
1KVOL	DB	111.1	0.483	108.9	1.703	106.9	3.384	104.0	5.340	103.2	3.237
1KHZ	DB	57.36	2.046	55.50	1.432	54.96	1.050	54.16	0.723	54.22	0.804
1KVOL	DB	42.46	2.620	40.30	2.162	41.96	5.229	38.36	1.256	38.68	1.264
5KHZ	DB	-	-	-	-	-	-	-	-	-	-
1KHZ	NA	-0.54	0.702	-0.99	1.146	-1.81	3.198	-2.42	6.917	-7.59	14.98
1KVOL	NA	-0.20	0.971	8.486	6.811	22.74	19.88	72.92	83.96	119.3	144.2
1KHZ	NA	-	-	-	-	-	-	-	-	-	-
1KVOL	MV	0.022	0.030	0.001	0.028	-0.02	0.062	-0.02	0.084	-0.11	0.198

REMARKS: \*RF=100K, NON-INV INPUT VIA 9.1K TO GND, RL=5K.

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\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF.NO. RECORD  
\*\*\*\*\*  
08      D/A CONVERTER      BIPOLAR      1032      5340  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
\*\*\*\*\*  
FAIRCHILD      UAO801      TRW  
\*\*\*\*\*

LDC    RAD. TYPE    PART QTY.    BIAS  
-----  
7818   CO-60       16        SEE RECORD 5344 FOR BIAS INFORMATION.  
-----

CUM.DOSE(RADS):      0      100K      300K      500K  
-----  
PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
-----  
VOUT(OFF)\* MV    .6475 2.119    .6867 .4681    6.913 5.823    21.15 14.68  
VOUTC(OFF)\* V    9.893 .0209    9.764 .0288    9.669 .0469    9.599 .0529  
VOUT(B8 HI)MV    38.22 2.352    36.10 2.730    36.29 4.606    44.60 9.784  
VOUTC(B8 HI)V    9.857 .0209    9.732 .0281    9.642 .0434    9.578 .0505  
VOUT(B7 HI)MV    75.77 3.734    70.87 4.118    67.78 5.622    73.55 8.701  
VOUTC(B7 HI)V    9.823 .0272    9.698 .0282    9.613 .0409    9.558 .0437  
\*\*\*\*\*

REMARKS: \*VOUT ON 5K@PIN4; VOUTC=COMPL(VOUT) @PIN2; ()=INPUT. \*\*CONT. ON 5341.  
\*\*\*\*\*

\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF.NO. RECORD  
\*\*\*\*\*  
08      D/A CONVERTER      BIPOLAR      1032      5341  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
\*\*\*\*\*  
FAIRCHILD      UAO801  
\*\*\*\*\*

LDC    RAD. TYPE    PART QTY.    BIAS  
-----  
SEE RECORD 5344.  
-----

CUM.DOSE(RADS):      0      100K      300K      500K  
-----  
PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
-----  
VOUT(B6 HI) V    .1548 .0046    .1502 .0047    .1473 .0055    .1520 .0080  
VOUTC(B6 HI)V    9.740 .0220    9.620 .0298    9.536 .0405    9.479 .0432  
VOUT(B5 HI) V    .3088 .0026    .3010 .0030    .2933 .0047    .2958 .0074  
VOUTC(B5 HI)V    9.586 .0209    9.472 .0287    9.391 .0384    9.343 .0410  
VOUT(B4 HI) V    .6173 .0043    .6066 .0047    .6003 .0051    .6030 .0073  
VOUTC(B4 HI)V    9.278 .0201    9.168 .0262    9.085 .0370    9.036 .0402  
\*\*\*\*\*

REMARKS: CONTINUATION FROM RECORD 5340. CONTINUED ON RECORD 5342.  
\*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
08	D/A CONVERTER	BIPOLAR	1032	5342

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	UA0801		

LDC	RAD. TYPE	PART QTY.	BIAS

SEE RECORD 5344.

CUM. DOSE(RADS): 0 100K 300K 500K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOUT(B3 HI) V	1.239	.0046	1.223	.006	1.212	.007	1.213	.009
VOUTC(B3 HI) V	8.658	.019	8.553	.024	8.475	.0344	8.430	.0366
VOUT(B2 HI) V	2.484	.0068	2.458	.0077	2.441	.0089	2.437	.0011
VOUTC(B2 HI) V	7.412	.0157	7.318	.0221	7.251	.0327	7.206	.0331
VOUT(B1 HI) V	4.984	.0107	4.942	.0141	4.892	.0446	4.899	.0224
VOUTC(B1 HI) V	4.913	.0121	4.836	.0167	4.785	.0410	4.775	.0608

REMARKS: CONTINUATION FROM RECORD 5341. CONTINUED ON RECORD 5343.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
08	D/A CONVERTER	BIPOLAR	1032	5343

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	UA0801		

LDC	RAD. TYPE	PART QTY.	BIAS

SEE RECORD 5344.

CUM. DOSE(RADS): 0 100K 300K 500K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOUT(FS*) V	9.895	.0223	9.773	.0292	9.672	.0384	9.624	.0459
VOUTC(FS) MV	2.861	2.496	1.406	2.853	5.898	4.572	8.921	5.571
I(FS) UA	-.01	0.000	.0088	.0048	.0606	.0331	.0613	.0203
VREF MV	54.60	21.16	77.92	13.17	63.24	13.38	52.86	12.82
TPLH NS	59.71	1.660	57.15	2.177	64.61	2.773	67.14	2.807
TPLH NS	63.98	7.855	59.72	1.618	62.91	2.088	62.53	2.535

REMARKS: CONT FROM REC 5342. \*FS=FULL SCALE. CONTINUED ON RECORD 5344 (BIAS).

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MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
PMI	QP09		II

LDC	RAD.	TYPE	PART	QTY.	BIAS
8026	CO-60		4		UNK.

CUM. DOSE (RADS):		0		12.5K		25K		50K		100K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ADOL	DB	107.4	1.090	103.4	1.586	97.9	8.591	95.9	7.933	93.7	11.22
BB +	NA	88.24	11.17	134.0	27.54	140.0	42.78	141.8	55.3	145.9	65.4
WDS	MV	0.713	2.354	1.28	2.505	1.69	2.797	3.30	4.368	5.86	8.704
LOS	NA	1.956	8516	1.05	3.471	3.62	4.771	3.394	6.268	4.484	6.555

REMARKS: \*THE VALUES SHOWN ARE THE ABSOLUTE VALUES (ACTUAL VALUES ALL NEGATIVE)

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1100	10-BIT D/A CONVERT	TTL	24-44	1220

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
D M I	AIMDAC100	COMMERCIAL	ROCKWELL

DC	RAD. TYPE	PART QTY.	BIAS
0203	CO-60	5	V+=15V, V-=-15V, BIT(2,4,6,8,10)=5V, REST BITS GND

PARAMETERS	0		100K		200K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V/O(F/SET)V			-.012	0.004	-.017	0.005	-.016	0.007
V/O(OSET)WV			-.037	0.033	-.034	0.027	0.032	0.024

REMARKS:

GENERIC PART NUMBER: 100

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1001	8-BIT A/D CONVERTER	TTL	1-144	70

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TRW	TDC1001J		JPL

LDC	RAD.	TYPE	PART QTY.	BIAS
7802C	C0-60		2	VCC=5V, VEE=-5V.

CUM. DOSE (RADS) :	0		75K		250K		750K		2.5 MEG	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS										
ICC(MAX) * MA	10.1		11.0		12.5		10.5		17.5	
IREF(MAX) * NA	69		165		305		460		560	
IIH(MAX) * UA	3.1		4.6		6.4		9.1		11.0	
DVCS(MAX) * MV	4.35		3.2		8.1		13.5		23.2	

REMARKS: \* MEAN = WORST-CASE PARAMETER VALUE (NOT AVERAGE).BIAS SAME AS ABOVE.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
101	CP AMP	BIPOLAR	1-39	160

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL SEMI	LM101		JPL

LDC	RAD.	TYPE	PART QTY.	BIAS
LINK	CO-60		3	LINK

PARAMETERS	0		75K		250K		750K		2.5M	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV			.2	1.555	.55	.4039	1.12	.7390	2.2	1.150
DIOS NA			1.	.6429	3.2	2.258	8.	5.272	12.8	7.378
DIB NA			5.	1.132	25.	.3150	70.	6.260	150.	25.92
+GAIN DB	117.		106.5	5.586	103.	7.596	91.	4.772	84.5	3.853
-GAIN DB	115.		116.	12.63	104.	5.452	94.	6.609	82.	3.476

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
101	OP AMP	BIPOLAR	1-40 170

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL SEMI.	LM101		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	3	UNK.

CUM. DOSE (RADS):		0		75K		250K		750K		2.5MEG	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV			.05	.0100		.15	.0351		.35	.0849	.83 .1071
DIOS NA			.4	.8640		1.06	2.222		1.36	4.399	.03 8.695
DIE NA			8.	.2093		26.	1.179		60.	3.389	122. 3.648
+GAIN DB		123.0	110.7	1.535	109.2	.8300	97.6	.9819	90.8	1.648	
-GAIN DB		111.0	129.	9.787	109.5	2.554	98.5	1.417	92.	.9372	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
101	OP AMP	BIPOLAR	1-41 180

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL SEMI.	LM101		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	2.5MEV EL	4	UNK.

CUM. DOSE (RADS):	0		75K		150K		300K		600K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DV05 MV			.04	.1173	.02	.2351	.148	.2883	.038	.4727
D105 NA			.5	.2961	1.3	.7837	1.8	2.925	5.1	3.878
D1B NA			8.	1.181	15.5	2.180	30.5	3.560	54.5	7.615
+GAIN DB	117.		117.2	7.122	106.	1.348	FAIL		109.3	2.251
-GAIN DB			115.4	4.059	125.	4.659	FAIL		FAIL	

REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER: 101  
 \*\*\*\*\*  
 FUNCTION: OP AMP  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 31 1130  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: AMD  
 PART NUMBER: AMD101A  
 SPECIFICATION: IRT  
 DATA SOURCE: IRT  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO-60 UNK V+=15V, V-=GND, VIN-=7.5V, VIN+=7.1V, VO 4K TO GND

CUM.DOSE(RADS): 0

PARAMETERS	100K		300K		500K		1M	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D IT MA	2.110	0.05	- .16	- .22	- .32	- .32	- .32	- .32
D I- MA	2.130	- .06	- .16	- .22	- .32	- .32	- .32	- .32
D VOS MV	1.05	0.03	0.12	0.21	0.37	0.37	0.37	0.37
D IOS NA	4.05	0.56	0.86	1.07	1.81	1.81	1.81	1.81
D IB NA	49.2	9.5	29.4	32.0	54.1	54.1	54.1	54.1
D AV DB	107	1.0	2.0	2.0	13.0	13.0	13.0	13.0

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 101  
 \*\*\*\*\*  
 FUNCTION: OP AMP  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 31 1140  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: INTERSIL  
 PART NUMBER: LM101AH  
 SPECIFICATION: IRT  
 DATA SOURCE: IRT  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO-60 8 V+=15V, V-=GND, VIN-=7.5V, VIN+=7.1V, VO 4K TO GND

CUM.DOSE(RADS): 0

PARAMETERS	35K		100K		300K		1M	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D VOS MV	- .032	.0145	- .188	.1830	- .347	.2620	- .748	.7330
D IOS NA	- .043	.2450	- .465	.6400	- .846	1.290	- 3.17	3.920
D II NA	6.09	1.590	12.30	3.000	31.00	5.000	83.50	11.56
D AV DB	3.260	11.30	2.360	5.210	7.43	8.54	-4.51	6.860

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
101	OP AMP	BIPOLAR	31	1150

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRO	LM101AH		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
7538	CO-60	5	V+=15V, V-=GND, VIN-=7.5V, VIN+=7.1V, VO 4K TO GND

CUM. DOSE (RADS): 0

PARAMETERS	13K		52K		170K		360K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIO	0.700		0.700		0.600		0.300	
IIO	1.000		1.900		5.2		9.5	
IB	44.00		53.00		61.00		70.00	
IQ	2.000		2.000		1.900		1.900	
GBW	1241		1276		1164		1085	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
101	OP-AMP	BIPOLAR	24-13	1370

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	LM101AH	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
8008A	CO-60	8	V+=15V, V-= -15V, NONINV-INPUT=5V, INV-IN=OUT

CUM. DOSE (RADS): 0

PARAMETERS	30K		100K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
D VOS	-0.395	0.224	-5.39	1.372	-83.4	47.21
D IOS	1.159	2.679	-7.33	6.872	-269.	148.7
D IIB	50.74	18.01	135.3	38.35	326.8	56.50

REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER: 101  
 \*\*\*\*\*

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 \*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
101	OP-AMP	BIPOLAR	24-12 1380

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM101AH	COMMERCIAL	ROCKWELL

LDC RAD. TYPE PART QTY. BIAS

8022 CO-60 4 V+=15V, V-=-15V, NONINV-INPUT=5V, INV-IN=OUT

CUM. DOSE (RADS): 0 30K 100K 300K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D VDS	-0.001	0.008	-0.269	0.040	-0.911	0.222		
D IIB	13.00	2.606	32.83	3.599	78.28	11.38		

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
101	OP-AMP	BIPOLAR	24-11 1390

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM101AH	COMMERCIAL	ROCKWELL

LDC RAD. TYPE PART QTY. BIAS

8023 CO-60 4 V+=15V, V-=-15V, NONINV-INPUT=5V, INV-IN=OUT

CUM. DOSE (RADS): 0 30K 100K 300K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D VDS	-0.012	0.019	-0.064	0.009	-0.402	0.050		
D IOS	0.004	0.110	0.222	0.278	0.603	1.241		
D IIB	14.00	0.294	28.55	0.532	54.93	2.998		

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 101  
 \*\*\*\*\*

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 \*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
101	OP-AMP	BIPOLAR	24-10	1400

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM101AH	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
8016	CO-60	4	V+=15V, V-=-15V, NONINV-INPUT=5V, INV-IN=OUT

CUM. DOSE (RADS) :	0		30K		100K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS								
D VDS			- .025	0.017				
D IOS			-.059	0.210	-.068	0.030	-1.45	0.372
D IIB			14.15	0.057	-.662	0.438	-4.34	1.552
					29.00	1.016	63.55	2.645

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
101	OP-AMP	BIPOLAR	24-9	1410

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
GENERAL ELECTRIC	LM101CHIP	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	8	V+=15V, V--=15V, NONINV-INPUT=5V, INV-IN=OUT

CUM. DOSE (RADS) :		0		30K		100K		300K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D VDS	MV			-.001	0.022	-.006	0.137	-.028	0.427
D IDS	NA			-.168	0.477	-.343	1.527	0.590	2.945
D IIB	NA			12.09	1.153	37.99	2.665	90.80	4.353

REMARKS:

GENERIC PART NUMBER: 101

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REMARKS:REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF.NO. RECORD  
-----  
101      OP AMP      BIPOLAR      1049      5510  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
AMD      AM101A      TRW  
\*\*\*\*\*

LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
7945D      CO-60 + N\*      10      V+=15V, V=-15V, NONINV-INPUT TO GND VIA 6.8K, \*\*  
\*\*\*\*\*

CUM.DOSE(RADS):      0      200K+N\*  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
AVOL      DB      111.5      2.830      113.7      1.464  
IB      NA      38.50      3.408      58.12      3.587  
IOS      NA      0.566      0.458      1.531      1.198  
VOS      MV      0.424      0.361      0.396      0.358  
\*\*\*\*\*

REMARKS: \*\* RIN=10K, RF=20K, RL=10K, NO SIGNAL INPUT. \*NEUTRONS: 6.E11 N/SQCM.  
\*\*\*\*\*

\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF.NO. RECORD  
-----  
101      OP AMP      BIPOLAR      1064      5660  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
NATIONAL      LM101AM      TRW  
\*\*\*\*\*

LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
7810      CO-60 + N\*      10      V+=+15V; V=-15V.  
\*\*\*\*\*

CUM.DOSE(RADS):      0      \*N+100K      \*N+300K      \*N+500K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
AVOL      DB      113.5      2.037      114.6      2.298      104.2      7.861      102.5      6.844  
IB      NA      37.54      7.947      67.98      11.79      106.9      16.33      132.6      17.63  
IOS      NA      .6996      1.751      1.402      2.078      1.666      3.051      1.934      4.213  
VOS      MV      .1420      .6893      .2319      .6870      .3000      1.327      .7298      1.431  
\*\*\*\*\*

REMARKS: \*NEUTRON RAD. = 6.E11 N/SQCM.  
\*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1021	4-BIT A/D CONVERTER	TTL	1-145	80

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TRW	TDC1021J		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7935	2.5MEV EL	3	VCC=5.25, VEE=-6.25V, VRB=-2.0V.

[illegible]

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1021	4-BIT A/D CONVERTER	TTL	1-145	81

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TRW	TDC1021J		

QDC	RAD.	TYPE	PART	QTY.	BIAS

PARAMETERS	0		30K		75K		150K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IL(MAX)	810		782		775		778		781	
YH(MIN)	2.96		2.97		2.95		2.94		2.91	
DS(MAX)	7.84		7.56		7.51		7.49		7.44	
DL(MAX)	313		323		324		330		348	
SK(MIN)	16.01		14.52		12.95		11.45		9.10	

REMARKS: CONTINUATION FROM RECORD 80. \*PARAMETERS CONTINUED ON RECORD 82.



\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
1021      4-BIT A/D CONVERTER      TTL      1-145      82

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
TRW      TDC1021J

-----  
LDC    RAD. TYPE    PART QTY.    BIAS

-----  
CUM. DOSE(RADS):      0      30K      75K      150K      600K  
-----  
PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
-----  
ACCURACY      .0346      .0336      .0336      .0351      .0333  
(MAX) %  
TOP ERROR      9.00      8.50      8.50      8.00      8.00  
(MAX) MV  
BOTTOM ERROR      1.5      0.5      0.5      0.5      2.5  
(MAX) MV  
\*  
REMARKS: CONTINUATION FROM RECORD 81. \*END OF PARAMETERS.

\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
103      OPTICAL COUPLER      BIPOLAR      1015A      5150

-----  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
TI      TIL103      TRW

-----  
LDC    RAD. TYPE    PART QTY.    BIAS  
-----  
7943    CO-60      5      VCC=10V, B @ GND, E TO GND VIA 10K, DIODE, SHORTED.

-----  
CUM. DOSE(RADS):      0      100K      200K      500K      1MEG  
-----  
PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
-----  
HFE(1)      1139.    217.    833.2    114.9    660.8    69.0    433.8    40.0    374.6    47.3  
HFE(2)      1315.    223.    1150.    166.    974.6    112.4    764.2    86.5    730.0    105.2  
\*\*\*

REMARKS: (1) VCE=5V, IC=1MA, IF=0. (2) VCE=5V, IC=10MA, IF=0. \*\*\* CONT. ON REC. 5151

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\*\*\*\*\*  
 GENERIC PART NUMBER: 103  
 FUNCTION: OPTICAL COUPLER  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1015A 5151  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: TI  
 PART NUMBER: TIL103  
 SPECIFICATION: DATA SOURCE: \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 \*\*\*\*\*

CUM. DOSE (RADS): 0 100K 200K 500K 1MEG  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 \* VCE(SAT)\*\* MV 137.2 11.0 149.2 11.9 159.6 17.3 223.0 56.6 7353. 7036.  
 VCE(SAT) MV 155.6 13.7 174.0 15.0 179.4 18.7 213.4 31.9 262.4 52.3  
 @IC=10MA,  
 IB=0, IF=20MA  
 \*\*\*\*\*

REMARKS: \*CONT. FROM REC. 5150. \*\*IC=5MA, IF=10MA, IB=0. \*\*\* CONT. ON REC. 5152  
 \*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER: 103  
 FUNCTION: OPTICAL COUPLER  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1015A 5152  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: TI  
 PART NUMBER: TIL103  
 SPECIFICATION: DATA SOURCE: \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 \*\*\*\*\*

CUM. DOSE (RADS): 0 100K 200K 500K 1MEG  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 \* IC(ON) MA 6.678 2.976 5.042 2.239 4.432 1.905 2.742 1.417 2.108 1.318  
 @IF=5MA, (1)  
 IC(ON) MA 15.30 5.54 12.41 4.38 11.01 3.75 8.008 3.338 5.262 0.647  
 @IF=10MA, (1)  
 IC(OFF)(2) NA 2.260 0.634 2.240 0.920 2.800 0.692 10.97 12.67 45.96 97.85  
 1PT. ANOM. @\*\*  
 REMARKS: \*CONT. FROM REC. 5151. (1)VCE=5V, IB=0. (2)VCE=20V, IB=0, IF=0.  
 \*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
104	VOLT REG	BIPOLAR	32	1020

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM104	IRT CORP	

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	4	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	300K		100K		300K		1M	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D ICC	- .030	.0082	- .05	.0082	- .073	.0050	- .095	.0058
D LINE REG %	0.038	.051	0.01	.05	- .10	.052	- .357	.060
D LOAD REG %	0.0	0.0	.0045	.0052	0.047	.0085	0.137	0.020
D VOL DIF V	.0225	0.005	.0475	0.005	0.075	0.001	.0875	0.005

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
104	VOLTAGE REGULATOR	BIPOLAR	24-14	1360

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM104F	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
8011	CO-60		UNREG- INPUT=REF=20V

CUM. DOSE (RADS): 0

PARAMETERS	10K		30K		100K	
	MEAN	SD	MEAN	SD	MEAN	SD
D LOAD REG %	0.004	0.015	- .004	0.031	0.010	0.028
					0.005	0.016

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
108	OP AMP	BIPOLAR	1-42	190

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM108		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	5	UNK.

CUM. DOSE (RADS):		0		75K		150K		300K		600K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
DVOS MV			.7	.1802	1.4	.4153	2.5	.6489	4.1	.8650	
DIOS NA			.08	.0235	.2	.0856	.6	.1862	1.45	.3601	
DIB NA			3.8	.6661	7.2	1.006	11.6	1.346	17.4	1.648	
+GAIN DB	111.0		98.8	1.039	92.	1.500	87.	1.848	82.	1.022	
-GAIN DB	112.0		93.8	1.047	87.8	1.243	82.	2.008	76.4	1.655	

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
108	OP AMP	BIPOLAR	1-43	200

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL SEMI.	LM108		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	3	UNK.

CUM. DOSE (RADS):		0		75K		250K		750K		2.5K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
DVOS MV			.07	.0140	.1	.2271	.22	.0407	.59	.2729	
DIOS NA			.05	.1661	.1	.2856	1.15	.5836	2.3	1.495	
DIB NA			.5	.0778	.2	.0601	12.	.4680	28.5	1.034	
+GAIN DB	110		104.4	1.344	93.4	1.349	FAIL		FAIL		
-GAIN DB	114		112.	5.963	105.	1.506	93.5	.7009	78.5	1.209	

REMARKS:

\*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER: 108  
 FUNCTION: OP AMP  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1-44 210  
 \*\*\*\*\*

MANUFACTURER: NATIONAL SEMI.  
 PART NUMBER: LM108  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL

LDC RAD. TYPE PART QTY. BIAS  
 NONE CO-60. 3 UNK.

CUM. DOSE (RADS): 0  
 PARAMETERS: MEAN SD 75K 250K 750K 2.5MEG  
 DVOS MV .005 .0200 .02 .0755 .05 .1330 .485 .2343  
 DIOS NA .012 .0536 .054 .0555 .074 .0986 .09 .4185  
 DIB NA .6 .0608 2. .1351 5.4 .6722 14. 1.354  
 +GAIN DB 104 105.2 3.806 102.8 2.132 102.4 7.271 90.6 .9143  
 -GAIN DB 107 105. 3.391 101. 2.815 93.5 2.182 78. 1.687

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 108  
 FUNCTION: OP AMP  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1-45 220  
 \*\*\*\*\*

MANUFACTURER: NATIONAL SEMI.  
 PART NUMBER: LM108  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 4 UNK.

CUM. DOSE (RADS): 0  
 PARAMETERS: MEAN SD 75K 150K 300K 600K  
 DVOS MV .05 .0228 .11 .0358 .22 .0497 .47 .0917  
 DIOS NA .001 .0507 .036 .0378 .04 .1169 .168 .2116  
 DIB NA 1.4 .1336 2.6 .1767 4.7 .2809 8.2 .4705  
 +GAIN DB 114 119.2 18.11 115.8 11.63 103.8 3.275 FAIL  
 -GAIN DB 121 106. 3.013 100.6 1.425 94. 1.052 FAIL

REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER: 108  
 FUNCTION: OP AMP  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1-46 23C

\*\*\*\*\*  
 MANUFACTURER: NATIONAL SEMI.  
 PART NUMBER: LM108  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 3 UNK.

CUM. DOSE (RADS): 0  
 75K 150K 300K 600K  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 PARAMETERS  
 DVOS MV .01 .0198 .004 .0239 .036 .0749 .074 .0787  
 DIOS NA .022 .0283 .012 .0364 .004 .0515 .108 .1303  
 DIB NA .8 .0459 1.6 .0849 4. .1641 4.8 .2442  
 +GAIN DB 117 112.4 2.083 108.4 1.838 99.2 1.081 95. .6658  
 -GAIN DB 114 113.5 4.376 112.2 6.005 105.4 1.820 104.2 2.811

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 108  
 FUNCTION: OP AMP  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1-47 240

\*\*\*\*\*  
 MANUFACTURER: NATIONAL SEMI.  
 PART NUMBER: LM108  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 3 UNK.

CUM. DOSE (RADS): 0  
 75K 150K 300K 600K  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 PARAMETERS  
 DVOS MV .03 .0098 .072 .0158 .18 .0632 .218 .0594  
 DIOS NA .38 .4640 .02 .1531 .015 .2401 .045 .2578  
 DIB NA 1.3 .1180 2.8 .0698 6.9 .4272 9. .4206  
 +GAIN DB 127 120. 2.376 108. .6673 99. .6202 95. .4266  
 -GAIN DB 122 128.5 4.233 110.5 .6447 106. .3040 101. .3168

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
108	OP AMP	BIPOLAR	1-48 250

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM108		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	3	UNK.

CUM. DOSE (RADS):	O	75K		150K		300K		600K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS									
DVOS MV		.02	.0157	.049	.0271	.13	.0519	.27	.0896
DIOS NA		.017	.0101	.02	.0090	.022	.0731	.076	.0286
DIB NA		.8	.1026	1.6	.1921	2.9	.3369	5.1	.5514
+GAIN DB	140	115.6	3.427	106.8	.4363	98.8	.4363		FAIL
-GAIN DB	120	115.	2.306	110.2	.6696	104.	.6696	94.5	.4576

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
108	OP AMP	BIPOLAR	1-49 260

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM108		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	3	UNK.

CUM. DOSE (RADS):	O	75K		150K		300K		600K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS									
DVOS MV		.1	.0044	.18	.0094	.36	.0186	.75	.0293
DIOS NA		.07	.0216	.09	.0468	.22	.0198	.47	.0652
DIB NA		2.	.1558	3.8	.2775	7.	.4668	13.2	.7558
+GAIN DB	122	123.	4.825	120.	12.25	106.	3.792	96.	1.906
-GAIN DB	120	125.2	8.474	122.	10.95	117.8	2.033	106.4	3.476

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
108	OP AMP	BIPOLAR	1-51	280

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
PRECISION MONOLITHIC	LM108		JPL

LDC	RAD.	TYPE	PART QTY.	BIAS
*	2.5MEV	EL	5	UNK.

CUM. DOSE (RADS)	0		75K		150K		300K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS										
OVDS MV			.81	.6401	1.38	.9653	1.18	.9291	.75	.7276
DIOS NA			.21	.2216	.4	.2485	.47	.3216	.43	.3472
DIB NA			3.9	1.979	5.6	2.717	8.5	3.700	13.6	5.575
+GAIN DB	118		106.5	10.17		FAIL		FAIL		FAIL
GAIN DB	124		104.3	8.049	97.5	3.950	98.7	4.147		FAIL

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
108	OP AMP	BIPOLAR	27	1160

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
UNKNOWN.	LM108A		IRT

LDC	RAD.	TYPE	PART QTY.	BIAS
JNK.	CO-60	10	V+=+10V. V=-10V	

CUM. DOSE (RADS):		0		2M	
PARAMETERS		MEAN	SD	MEAN	SD
VOIS	MV	-.035	.2266	-.648	.3625
				MEAN	SD
				MEAN	SD

REMARKS:

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GENERIC PART NUMBER: 108

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
108	OP-AMP	BIPOLAR	24-19 1310

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM108AH	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
8016	CO-60	8	V+=15V, V--=15V, NONINV-INPUT=5V, INV-IN=OUT

CUM. DOSE (RADS): 0

PARAMETERS	30K		100K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
D VDS	0.011	0.007	1.680	0.436	9.314	1.666
D IOS	0.000	0.012	0.234	0.082	1.513	0.622
D IIB	0.124	0.031	0.639	0.208	1.486	0.648

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
108	OP-AMP	BIPOLAR	24-17 1320

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	LM108AH		ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
7942	CO-60	8	V+=15V, V--=15V, NONINV-INPUT=5V, INV-IN=OUT

CUM. DOSE (RADS): 0

PARAMETERS	30K		100K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
D VDS	1.233	0.438	7.053	1.344	32.90	17.37
D IOS	1.159	1.065	7.809	4.237	48.02	21.67
D IIB	8.557	2.791	37.65	9.427	84.41	19.88

REMARKS:

GENERIC PART NUMBER: 108

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\*\*\*\*\*  
GENERIC PART NUMBER: 108  
\*\*\*\*\*  
FUNCTION: OP-AMP  
TECHNOLOGY: BIPOLAR  
REF. NO.: 24-18  
RECORD: 1330

\*\*\*\*\*  
MANUFACTURER: BARNES  
PART NUMBER: LM108AH  
SPECIFICATION: COMMERCIAL  
DATA SOURCE: ROCKWELL

\*\*\*\*\*  
LDC: 7917  
RAD. TYPE: CO-60  
PART QTY.: 8  
BIAS: V+=15V, V-=-15V, NONINV-INPUT=5V, INV-IN=OUT

CUM. DOSE(RADS): 0

PARAMETERS	30K		100K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
D VOS	0.004	0.006	0.680	0.117	7.347	1.294
D IOS	-0.016	0.012	-0.372	0.056	-0.235	0.728
D IIB	0.145	0.031	0.694	0.185	1.888	0.643

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 108  
\*\*\*\*\*  
FUNCTION: OP-AMP  
TECHNOLOGY: BIPOLAR  
REF. NO.: 24-16  
RECORD: 1340

\*\*\*\*\*  
MANUFACTURER: NATIONAL  
PART NUMBER: LM108AF  
SPECIFICATION: COMMERCIAL  
DATA SOURCE: ROCKWELL

\*\*\*\*\*  
LDC: 8016  
RAD. TYPE: CO-60  
PART QTY.: 8  
BIAS: V+=15V, V-=-15V, NONINV-INPUT=5V, INV-IN=OUT

CUM. DOSE(RADS): 0

PARAMETERS	30K		100K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
D VOS	0.008	0.019	2.747	1.189	24.55	8.374
D IOS	-0.029	0.020	-0.514	0.293	13.14	2.063
D IIB	0.540	0.095	2.656	0.521	12.64	3.286

REMARKS:

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 GENERIC PART NUMBER: 108  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
108	OP-AMP	BIPOLAR	24-15 1350

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	LM108AF	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
8017	CO-60	8	V+=15V, V--=15V, NONINV-INPUT=5V, INV-IN=OUT

CUM. DOSE(RADS): 0

PARAMETERS	30K		100K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
D VOS	0.517	0.432	3.304	2.686	15.08	18.52
D IOS	0.823	2.064	4.878	7.759	26.11	39.54
D IIB	9.803	4.494	29.74	12.80	68.84	25.21

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
108	OP AMP	BIPOLAR	25-3 1620

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	LM108AH		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7613	CO-60	5	V+=15V, V--=15V, TYPICAL CIRCUIT (RF=10XRI)

CUM. DOSE(RADS): 0

PARAMETERS	6.1K		21K		82K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIO	.3	.3	.3	.3	.3	.3	.3	.3
IIO	.01	.01	.02	.01	.01	.01	.03	.03
IB	1.0	1.1	1.2	1.6	1.6	2.6*	2.6*	
IQ	.30	.30	.30	.30	.30	.30	.30	.30
GBW	222	218	235	231	231	229	229	229

REMARKS: \* 4 OF 5 FAILED 2 NA LIMIT FROM 15 TO 50%

\*\*\*\*\*  
 GENERIC PART NUMBER: 108  
 \*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
108	OP-AMP	BIPOLAR	16	1650

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	LM108		MOTOROLA

LDC	RAD.	TYPE	PART QTY.	BIAS
7816	CO-60	4	V <sub>I</sub> =+20V, V <sub>-</sub> =-20V, VIN+=+3V, VIN- TIED TO VOUT	

CUM. DOSE (RADS) :		0		25K		50K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOL	365.0	156.7	65.25	15.15	18.05	5.670		
CMR	130.3	2.500	12.25	3.862	98.25	5.252		
PSRR	112.0	3.652	104.5	10.41	89.00	3.342		
V10	1950	1457	7000	4143	2.013	1.000		
IIN	.4925	.0350	9.613	.9114	39.88	33.75		
I10	-.003	.0150	.4500	.4359	1.325	.9979		
ICC	.2575	.0350	.2375	.0350	.2213	.0325		
REMARKS:								

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
108	OP AMP	BIPOLAR	1005	5040

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM108F		TRW

LDC	RAD.	TYPE	PART	QTY.	BIAS
8009A	CO-60	5			V+=15V. V-=-15V. VIN=1V(P-P) 1KHZ. RTN=10K. RF=100K

CUM. DOSE (RADS):		0		50K		66.2K		82.7K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
1HZ	DB	110.2	4.49	109.6	3.98	108.7	4.45	100.6	7.11
1KHZ	DB	53.40	0.99	52.86	1.06	52.34	1.24	48.20	3.80
5KHZ	DB	37.74	1.65	35.60	2.80	35.36	2.83	33.02	3.30
100S	PA	-5.36	8.606	-78.0	12.14	-884.	249.2	-2712	524.0
100B	NA	0.919	0.126	2.110	0.374	2.584	0.605	3.234	0.777
100S	MV	-0.10	0.144	-1.26	0.827	-12.8	4.958	-40.8	11.76

REMARKS:

GENERIC PART NUMBER: 108

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
108	PRECISION OP AMP	BIPOLAR	1039	5410

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CA108		TRW

L <sup>+</sup>	RAD. TYPE	PART QTY.	BIAS
	CO-60	5	V+=+15V; V=-15V.

PARAMETERS		0		100K		300K		500K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DB	1AVDL	109.1	1.119	105.4	1.837	99.06	0.844	96.88	1.300
NA	2IB	5.460	0.365	11.02	0.622	18.46	0.871	24.92	0.884
NA	1IDS	-0.27	0.480	-0.38	0.532	-0.55	0.410	-0.69	0.308
MV	3JDS	0.047	0.306	-0.36	0.302	-0.14	0.328	-0.24	0.303

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
108	PRECISION OP AMP	BIPOLAR	1040	5420

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AND	AM108		TRW

DC	RAD.	TYPE	PART QTY.	BIAS
	CO-60		5	V <sub>+</sub> = +15V; V <sub>-</sub> = -15V.

PARAMETERS		0		100K		300K		500K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DB	106.9	1.036	105.6	2.237	103.4	2.508	103.6	3.695	
NA	1.048	0.147	2.012	0.340	3.486	0.656	4.700	0.886	
OS	0.003	0.032	-0.02	0.074	-0.16	0.296	-0.07	0.174	
MV	-0.14	0.029	-0.54	0.916	-0.83	1.437	-0.84	1.371	

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 108

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
108	OP AMP	BIPOLAR	1050	5520

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
"AMD?"	LM106		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
8003D	CO-60 + N*	10	V+=+15V, V=-15V, NONINV-INPUT TO GND VIA 6.8K, **

CUM. DOSE(RADS): 0 200K+N\*

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOL	106.9	2.302	100.6	2.703				
IB	0.986	0.250	3.122	0.711				
ABS(IOS)	27.9	31.5	95.4	123.0				
ABS(VDS)	196.9	145.7	365.4	213.6				

REMARKS: \*\* RIN=RL=10K, RF=20K, NO SIGNAL INPUT. \*NEUTRONS: 6.E11 N/SQCM.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
108	OP AMP	BIPOLAR	1065	5670

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	LM108AH		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
**	CO-60 + N*	10	V+=+15V; V=-15V.

CUM. DOSE(RADS): 0 \*N+100K \*N+300K \*N+500K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOL	108.1	2.484	101.6	2.524	98.98	3.531	96.96	4.237
IB	1.047	.3501	2.534	.6033	4.008	.9562	5.302	1.338
IOS	.0236	.0327	.1017	.0901	.1919	.2264	.3443	.3878
VDS	.1511	.2800	-.056	.3043	-.208	.3322	-.315	.4369

REMARKS: \*\*7846DP. \*NEUTRON RAD. = 6.E11 N/SQCM.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
109	5-VOLT REGULATOR	BIPOLAR	805-2	4460

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	LM109		TI

LDC	RAD. TYPE	PART QTY.	BIAS
115	CO-60	6	UNK.

CUM. DOSE(RADS): 0

PARAMETERS	12.5K		25K		50K		100K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
LOAD REG MV	13.67	1.366	13.83	1.560	14.08	1.584	14.67	1.633
VOUT V	5.003	.0263	5.002	.0263	4.999	.0263	4.991	.0264
LINE REG MV	6.55	.1975	8.667	.3907	9.183	.5529	9.367	.3108
							9.633	.3236

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
11	OP-AMP	BIPOLAR	24-5	1450

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM11CN	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	10	V+=15V, V--=15V, NONINV-INPUT=5V, INV-INPUT=OUTPUT

CUM. DOSE(RADS): 0

PARAMETERS	10K		30K		100K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D VDS MV	-.056	0.138	-.072	0.126	1.329	2.279	2.799	6.044
D IDS NA	-.015	0.034	0.040	0.042	0.057	0.046	0.023	0.121
D IIB NA	-.009	0.015	-.086	0.029	0.029	0.079	1.001	0.359

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
11	SAMPLE AND HOLD	BIPOLAR	1-142	1870

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
PMI	SMP11F		JPL

LDC	RAD.	TYPE	PART QTY.	BIAS
7920	2	5MEV EL	5	VCC=12V. VEE=12V.

CUM. DOSE (RADS) :		0		30K		75K		150K		600K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VDS(MAX) * MV		7.29		10.04		14.16		17.10		14.6	
IIB(MAX) UA		34.3		46.3		60.2		64.0		80.0	
+AV(RL=N/C)											
(MIN) DB		.9998		.9996		.9993		.9992		.9991	
-AV(RL=N/C)											
(MIN) DB		.9998		.9997		.9995		.9994		.9992	
PARAMETERS		CONT.	ON	REC.	1871.						
REMARKS: * MEAN=Worst-CASE (NOT AVG.) @VCC=12V, VEE=-12V, HOLD CAP=.05MFD.											

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
11	SAMPLE AND HOLD	BIPOLAR	1-142	1871

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
PW1	SMP11F		

DC	RAD.	TYPE	PART	QTY.	BIAS

CUM. DOSE (RADS) :		0		30K		75K		150K		600K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
+AV(RL=2.5K) *		.9997		.9995		.9993		.9991		.9989	
(MIN) DB											
-AV(RL=2.5K) *											
(MIN) DB		.9997		.9996		.9994		.9992		.9991	
+SK* (MIN) NA		8.78		7.33		6.33		5.83		5.45	
-SC* (MIN) MA		-19.5		-19.6		-19.4		-19.4		-19.1	
--PARAMETERS		CONT.	ON	REC.	1872.						

REMARKS: CONTINUED FROM RECORD 1870. \* MEAN=WORST-CASE VALUE.

GENERIC PART NUMBER: 11

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GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF.NO. RECORD  
-----  
11      SAMPLE AND HOLD      BIPOLAR      1-142      1872

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
PMI      SMP11F

-----  
LDC      RAD. TYPE      PART QTY.      BIAS      -----

CUM.DOSE(RADS):      0      30K      75K      150K      600K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
+SR(RL=2.5K)\*      4.50      3.44      2.03      1.11      0.60  
(MIN) V/US  
-SR(RL=2.5K)\*      -5.59      -4.51      -3.36      -2.34      -1.88  
(MIN) V/US  
IIH\* (MAX) NA      0.83      1.05      1.43      1.82      3.13  
IIL\* (MAX) UA      -5.33      -11.1      -15.7      -17.7      -17.4  
--PARAMETERS CONT.      ON REC. 1873.  
REMARKS: CONTINUED FROM RECORD 1871. \* MEAN=WORST-CASE VALUE

\*\*\*\*\*

\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF.NO. RECORD  
-----  
11      SAMPLE AND HOLD      BIPOLAR      1-142      1873

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
PMI      SMP11F

-----  
LDC      RAD. TYPE      PART QTY.      BIAS      -----

CUM.DOSE(RADS):      0      30K      75K      150K      600K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
TACQ(RL=2.5K)      3.51      4.99      7.18      8.92      7.68  
\*(MAX) US  
Q TRANS\*      583      596      593      632      626  
(MAX) PC  
ICC\* (MAX) MA      5.25      5.04      4.93      4.87      4.79

--PARAMETERS CONT. ON REC. 1874.  
REMARKS: CONTINUED FROM RECORD 1872. \* MEAN=WORST-CASE VALUE.

\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
11      SAMPLE AND HOLD      BIPOLAR      1-142      1874

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
PMI      SMP11F

-----  
LDC    RAD. TYPE    PART QTY.    BIAS

\*\*\*\*\*  
CUM. DOSE (RADS):      0      30K      75K      150K      600K  
-----  
PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
-----  
+IDFT(V=+5V)\*      1.57      2.44      4.32      1.79      2.81  
(MAX)    NA  
-IDFT(V=-5V)\*      1.56      10.65      10.35      10.46      9.79  
(MAX)    NA

\*\*\*\*\*  
END OF  
PARAMETERS  
REMARKS: CONTINUED FROM RECORD 1873.      \* MEAN=WORST-CASE VALUE.  
\*\*\*\*\*

\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
11C      OP AMP      BIPOLAR      1-38      1010

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
NATIONAL SEMI.      LM11CLH      JPL

-----  
LDC    RAD. TYPE    PART QTY.    BIAS  
-----  
7944    2.5MEV EL      3      UNK.

\*\*\*\*\*  
CUM. DOSE (RADS):      0      75K      150K      300K      600K  
-----  
PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
-----  
DVOS MV      10.7    7.883      1.5    5.895      32.4    4.302      25.3    3.134  
DIOS NA      .25    .3825      1.1    .1615      1.1    .6441      4.5    5.391  
DIB NA      9.8    7.681      4.5    1.481      29.9    4.801      21.6    6.556  
+GAIN DB      127.      59.1    1.313      FAIL      FAIL      FAIL  
-GAIN DB      123.      71.1    .9143      FAIL      FAIL      FAIL

\*\*\*\*\*  
REMARKS:  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO. RECORD
110	OP AMP VOLT FOLLOWR	BIPOLAR	1066 5680

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MOTOROLA	LM110C		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7515	CO-60 + N*	10	V++15V; V--15V

CUM.DOSE(RADS):		O		*N+100K		*N+300K		*N+500K			
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VDS	MV	2.394	1.122	2.562	1.144	2.499	1.241	2.431	1.328		
IB	NA	1.533	.5662	5.780	1.547	12.92	3.586	18.72	5.003		
RIN	GIGOHM	655.5	283.2	121.0	22.50	110.0	31.62	90.00	45.95		
+SLEW(1)	V/US	1377	58.53	1537	81.38	1530	78.31	1537	81.38		
-SLEW(1)	V/US	697.1	54.38	680.7	67.20	687.4	66.08	716.2	59.56		
+SLEW(2)	V/US	35.20	4.290	34.90	4.202	33.90	4.149	33.70	3.917		
-SLEW(2)	V/US	20.70	2.263	20.80	2.394	20.60	2.413	20.10	2.470		
REMARKS: *NEUTRON RAD. = 6.E11 N/SQCM. (1)INPUT R = 0. (2)INPUT R = 10K.											

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO. RECORD
111	COMPARATOR	BIPOLAR	1-52 300

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
79240	2.5MEV EL	3	UNK.

CUM.DOSE(RADS):		O		75K		250K		750K		2.5MEG	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVOS	MV			.3	.0939	.6	.0837	1.2	.2061	3.9	.2861
DIOS	NA			2.	.8581	4.	.7663	15.	.5554	74.	1.589
DIB	NA			55.	2.857	120.	5.864	250.	12.07	500.	27.11

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIPOLAR	1-53	310

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDLC	RAD. TYPE	PART QTY.	BIAS
7922	2.5MEV EL	8	UNK.

CUM. DOSE (RADS)	0		5K		10K		15K		20K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS										
OVOS MV			.12	.0483	.26	.0833	.4	.1113	.52	.1331
DIOS NA			.1	.3350	.24	.5688	.36	1.068	.43	1.878
DIB NA			28.	9.860	52.	22.51	74.	36.09	95.	49.79

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIPOLAR	1-54	320

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPI

LDC	RAD. TYPE	PART QTY.	BIAS
922	2.5MEV EL.	8	UNK.

PARAMETERS	O		30K		40K		50K		75K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVDS MV			.7	1.712	.88	1.988	1.4	2.544	1.28	3.143
DIOS NA			1.2	3.240	2.5	4.068	3.8	4.727	5.4	4.476
DIB NA			117.2	64.48	127.6	69.78	131	69.90	129.2	76.59

REMARKS:

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GENERIC PART NUMBER: 111

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIPOLAR	1-57	350

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDLC	RAD. TYPE	PART QTY.	BIAS
7922	2.5MEV EL	8	31NK.

CUM. DOSE (RADS) :		0		30K		40K		50K		75K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
OVDS	MV	.58	3.121	.79	3.905	.84	4.767	1.1	6.199		
DIOS	NA	2.5	3.208	3.7	4.873	5.	6.230	6.7	7.801		
DIB	NA	84.	81.98	95.	88.45	101.	86.83	106.	78.87		

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIPOLAR	1-58	360

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPI

DC	RAD.	TYPE	PART	QTY.	BIAS
922	2.5MEV	EL	8		LINK

CUM. DOSE (RADS):		0		5K		10K		15K		20K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOS MV				.1	.0766	.22	.1381	.31	.1829	.42	.2353
AIOS NA				.2	.2891	.52	.4148	.76	1.083	1.48	1.769
IB NA				18.	14.83	34.	30.30	49.9	46.12	64.	61.30

REMARKS:

GENERIC PART NUMBER: 111

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIPOLAR	1-59	370

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		.JPI

LDC	RAD. TYPE	PART QTY.	BIAS
7922	2.5MEV EL	8	UNK.

CUM. DOSE (RADS):		0		30K		40K		50K		75K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
OVOS	MV	.58	.3629					.86	.5232	1.18	.6424
DIOS	NA	1.9	1.515			2.3	1.814	3.2	2.079	3.9	2.835
DIB	NA	18.	13.37			33.	24.91	43.	32.50	48.	34.67

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIPOLAR	1-60	380

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LOC	RAD. TYPE	PART QTY.	BIAS
922	2.5MEV EL	8	UNK.

CUM. DOSE (RADS):		0		5K		10K		15K		20K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOS	MV	.13	.0911			.245	.1617			.35	.2312
AVOS	NA	.19	.3221			.44	.6459			.84	.7986
IB	NA	54.	33.60			58.8	32.20			64.8	30.82

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO. RECORD
111	COMPARATOR	BIPOLAR	1-61 390

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7922	2.5MEV EL	8	UNK.

CUM.DOSE(RADS):	O	30K		40K		50K		75K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS									
DVOS MV		.62	.2936	.76	.3627	.9	.4309	1.12	.5291
DIOS NA		1.7	1.497	2.6	2.750	3.5	3.708	4.8	4.851
DIB NA		16.	9.174	30.5	22.12	35.	25.16	51.	44.41

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO. RECORD
111	COMPARATOR	BIPOLAR	1-62 400

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7922	2.5MEV EL	8	UNK.

CUM.DOSE(RADS):	O	5K		10K		15K		20K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS									
DVOS MV		.11	.0697	.265	.1374	.36	.1829	.45	.2231
DIOS NA		3.5	12.49	.1	1.199	.6	.5942	.85	.7954
DIB NA		66.	61.64	77.	72.63	84.5	76.31	90.5	71.56

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO.	RECORD
111	COMPARATOR	BIPOLAR	1-63	410

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7922	2.5MEV EL	8	UNK.

CUM.DOSE(RADS):		0		5K		10K		15K		20K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVDS MV	.115	.0585	.27	.1048	.375	.1477	.455	.1764				
DIDS NA	3.	6.357	.8	.7796	1.28	1.292	1.8	1.929				
DIB NA	88.	70.10	93.8	70.25	100.	69.45	107.4	63.52				

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO.	RECORD
111	COMPARATOR	BIPOLAR	1-64	420

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7922	2.5MEV EL	8	UNK.

CUM.DOSE(RADS):		0		30K		40K		50K		75K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVDS MV	.62	.2390	.76	.2969	.91	.3614	1.12	.4618				
DIDS NA	2.9	2.834	3.5	3.533	4.15	4.107	5.25	5.396				
DIB NA	24.	12.64	43.	27.43	59.	43.09	73.	56.86				

REMARKS:

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 GENERIC PART NUMBER 111  
 FUNCTION  
 COMPARATOR  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 1-67 450  
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 MANUFACTURER  
 PART NUMBER  
 ADVANCED MICRODEVICE LM111  
 SPECIFICATION  
 DATA SOURCE JPL  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 7922 2.5MEV EL 8 UNK.  
 \*\*\*\*\*

CUM. DOSE (RADS): 0  
 30K 40K 50K 75K  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 PARAMETERS  
 DVOS MV .79 .3618 .94 .4296 1.12 .5164 1.42 .6632  
 DIOS NA 5.9 4.847 8.4 6.431 10.4 8.005 12.6 9.165  
 DIB NA 151. 87.58 169. 98.34 171. 96.67 170.8 87.01  
 \*\*\*\*\*

REMARKS:

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 GENERIC PART NUMBER 111  
 FUNCTION  
 COMPARATOR  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 1-L, 460  
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 MANUFACTURER  
 PART NUMBER  
 ADVANCED MICRODEVICE LM111  
 SPECIFICATION  
 DATA SOURCE JPL  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 7922 2.5MEV EL 8 UNK.  
 \*\*\*\*\*

CUM. DOSE (RADS): 0  
 5K 10K 15K 20K  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 PARAMETERS  
 DVOS MV .14 .0699 .3 .1514 .44 .2124 .55 .2656  
 DIOS NA .4 .7014 7.2 14.10 1.6 2.330 3. 3.042  
 DIB NA 28. 14.39 52. 36.15 88. 47.13 114. 62.95  
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REMARKS:

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GENERIC PART NUMBER: 111

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 GENERIC PART NUMBER 111  
 FUNCTION  
 COMPARATOR  
 TECHNOLOGY  
 BIPOLAR  
 REF. NO. RECORD  
 1-69 470

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 MANUFACTURER  
 PART NUMBER  
 ADVANCED MICRODEVICE LM111  
 SPECIFICATION  
 DATA SOURCE  
 JPL

LDC RAD. TYPE PART QTY. BIAS  
 7922 2.5MEV EL 4 UNK.

CUM. DOSE (RADS): 0  
 PARAMETERS  
 MEAN SD  
 5K 10K 15K 20K  
 DVOS MV .08 .0499 .18 .1059 .27 .1555 .34 .1962  
 DIOS NA .07 .3447 .28 .4681 .43 .6277 .6 .8241  
 DIB NA 14. 10.96 24.5 19.27 31. 22.62 35. 22.97

REMARKS:

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 GENERIC PART NUMBER 111  
 FUNCTION  
 COMPARATOR  
 TECHNOLOGY  
 BIPOLAR  
 REF. NO. RECORD  
 1-70 480

\*\*\*\*\*  
 MANUFACTURER  
 PART NUMBER  
 ADVANCED MICRODEVICE LM111  
 SPECIFICATION  
 DATA SOURCE  
 JPL

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 9 UNK.

CUM. DOSE (RADS): 0  
 PARAMETERS  
 MEAN SD  
 75K 150K 300K  
 DVOS MV .36 .0474 .72 .1430 .98 .3596  
 DIOS NA 1. .8986 3.2 1.725 6.9 3.811  
 DIB NA 56. 21.76 104. 4.270 168. 4.832

REMARKS:

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 GENERIC PART NUMBER: 111

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GENERIC PART NUMBER: 111  
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GENERIC PART NUMBER 111  
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FUNCTION  
\*\*\*\*\*  
COMPARATOR  
\*\*\*\*\*  
TECHNOLOGY  
\*\*\*\*\*  
BIPOLAR  
\*\*\*\*\*  
REF. NO. RECORD  
\*\*\*\*\*  
1-71 490  
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MANUFACTURER  
\*\*\*\*\*  
PART NUMBER  
\*\*\*\*\*  
ADVANCED MICRODEVICE LM111  
\*\*\*\*\*  
SPECIFICATION  
\*\*\*\*\*  
DATA SOURCE  
\*\*\*\*\*  
JPL  
\*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
-----  
NONE 2.5MEV EL 9 UNK.

CUM. DOSE (RADS): 0  
-----  
PARAMETERS MEAN SD 75K 150K 300K  
-----  
DVOS MV .48 .0467  
DIOS NA 2. .4121 1.04 .1289 1.72 .2180  
DIB NA 66. 5.270 103. 6.196 11. 1.728 160. 8.227

REMARKS:

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GENERIC PART NUMBER 111  
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FUNCTION  
\*\*\*\*\*  
COMPARATOR  
\*\*\*\*\*  
TECHNOLOGY  
\*\*\*\*\*  
BIPOLAR  
\*\*\*\*\*  
REF. NO. RECORD  
\*\*\*\*\*  
1-72 500  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER  
\*\*\*\*\*  
PART NUMBER  
\*\*\*\*\*  
ADVANCED MICRODEVICE LM111  
\*\*\*\*\*  
SPECIFICATION  
\*\*\*\*\*  
DATA SOURCE  
\*\*\*\*\*  
JPL  
\*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
-----  
NONE 2.5MEV EL 9 UNK.

CUM. DOSE (RADS): 0  
-----  
PARAMETERS MEAN SD 75K 150K 300K  
-----  
DVOS MV .5 .0992  
DIOS NA 1.8 .7050 .92 .2240 1.58 .3313  
DIB NA 62. 4.800 100. 5.128 9. 3.108 156. 6.141

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 111  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIPOLAR	1-73	510

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	9	UNK.

CUM. DOSE (RADS):	0	75K	150K	300K
PARAMETERS	MEAN	SD	MEAN	SD
DVOS MV	.44	.1216	.98	.2775
DIOS NA	2.1	1.240	5.2	2.313
DIB NA	64.	16.12	108.	11.78
			1.52	.4773
			11.2	4.455
			168.	11.98

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIPOLAR	1-74	520

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	9	UNK.

CUM. DOSE (RADS):	0	75K	150K	300K
PARAMETERS	MEAN	SD	MEAN	SD
DVOS MV	.34	.0495	.6	.1024
DIOS NA	.8	.8675	2.4	1.473
DIB NA	68.	8.192	116.	9.306
			.88	.1738
			6.6	2.655
			196.	15.65

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIPOLAR	1-76	530

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	9	UNK.

CUM. DOSE (RADS):	0	75K		150K		300K	
		MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS							
DVDS MV		.27	.0259	.47	.0464	.64	.0955
DIOS NA		.8	.6484	2.	.9466	4.8	1.432
DIB NA		70.	5.620	112.	7.600	182.	11.24

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIPOLAR	1-77	540

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	9	UNK.

CUM. DOSE (RADS):	0	75K		150K		300K	
		MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS							
DVDS MV		.4	.8198	1.25	.5372	4.1	6.549
DIOS NA		6.32	8.865	7.58	4.967	6.72	64.77
DIB NA		82.	31.43	118.	31.37	174.	28.57

REMARKS:

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 GENERIC PART NUMBER 111  
 FUNCTION  
 COMPARATOR  
 TECHNOLOGY  
 BIPOLAR  
 REF. NO. RECORD  
 1-78 550  
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\*\*\*\*\*  
 MANUFACTURER  
 PART NUMBER  
 ADVANCED MICRODEVICE LM111  
 SPECIFICATION  
 DATA SOURCE  
 JPL  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 9 UNK.  
 \*\*\*\*\*

\*\*\*\*\*  
 CUM. DOSE (RADS): 0  
 75K 150K 300K  
 PARAMETERS MEAN SD MEAN SD MEAN SD  
 DVOS MV .44 .0531 1. .1103 1.56 .1796  
 DIOS NA 1.8 .7225 4.4 1.209 10.3 2.216  
 DIB NA 70. 3.896 112. 4.709 172. 6.446  
 \*\*\*\*\*

\*\*\*\*\*  
 REMARKS:  
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\*\*\*\*\*  
 GENERIC PART NUMBER 111  
 FUNCTION  
 COMPARATOR  
 TECHNOLOGY  
 BIPOLAR  
 REF. NO. RECORD  
 1-79 560  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER  
 PART NUMBER  
 ADVANCED MICRODEVICE LM111  
 SPECIFICATION  
 DATA SOURCE  
 JPL  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 9 UNK.  
 \*\*\*\*\*

\*\*\*\*\*  
 CUM. DOSE (RADS): 0  
 75K 150K 300K  
 PARAMETERS MEAN SD MEAN SD MEAN SD  
 DVOS MV .34 .0358 .7 .0688 1.6 .0962  
 DIOS NA 1.6 .5578 4. 1.166 8.8 1.393  
 DIB NA 78. 4.702 128. 7.474 208. 12.32  
 \*\*\*\*\*

\*\*\*\*\*  
 REMARKS:  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO.	RECORD
111	COMPARATOR	BIPOLAR	1-80	570

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	9	UNK.

CUM.DOSE(RADS):	0	75K		150K		300K	
		MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS							
DVOS MV		.4	.0766	.79	.1720	1.19	.2701
DIOS NA		1.	.7616	3.1	1.529	7.1	2.667
DIB NA		61.	4.288	98.	4.478	156.	5.428

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO.	RECORD
111	COMPARATOR	BIPOLAR	1-81	580

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	8	UNK.

CUM.DOSE(RADS):	0	75K		150K		300K	
		MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS							
DVOS MV		.5	.0961	1.8	.2214	1.72	.3693
DIOS NA		2.	.6741	5.4	1.101	11.8	2.674
DIB NA		64.	5.869	101.	7.015	159.	8.447

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
111	COMPARATOR	BIPOLAR	1-82 590

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	9	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	75K		150K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV	.39	.0389	.76	.0822	1.12	.1390
DIOS NA	1.2	.6962	3.1	.8941	8.8	1.759
DIB NA	66.	6.586	116.	8.553	188.	11.14

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
111	COMPARATOR	BIPOLAR	1-83 600

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	6	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	75K		150K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV	.295	.0659	.41	.0718	.595	.1318
DIOS NA	.7	.6679	1.	1.088	3.4	1.731
DIB NA	72.	4.489	108.	5.576	184.	9.369

REMARKS:

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 GENERIC PART NUMBER: 111  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIPOLAR	1-84	610

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	7	UNK.

CUM.DOSE(RADS): 0 75K 150K 300K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV	.26	.0625	.54	.1357	.82	.1810		
DIOS NA	5.3	5.655	2.1	1.429	5.9	2.062		
DIB NA	76.	3.800	124.	5.005	212.	8.716		

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIPOLAR	1-85	620

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL SEMI.	LM111		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
TASK4	2.5MEV EL	3	UNK.

CUM.DOSE(RADS): 0 75K 250K 750K 2.5M

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV	1.2	.2208	2.2	.6421	5.2	1.792	19.2	11.82
DIOS NA	10.	5.251	50.	18.49	170.	46.65	395.	90.24
DIB NA	360.	17.24	640.	14.06	830.	25.76	645.	77.98

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 111  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIFET	1-37	1000

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LF1114	.	JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7849	2.5MEV EL	3	UNK.

[illegible]

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	VOLTAGE COMPARATOR	BIPOLAR	34	1030

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM111F		1PT CORR

DC	RAD.	TYPE	PART	QTY.	BIAS
ONE	CO-60		8		UNK.

PARAMETERS		0		10K		100K		300K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOS	MV			0.256	0.398	9.460	5.53	15.81	12.55
IOS	NA			-32.7	26.50	532.4	510.0	738.0	621.0
IB	NA			-104.	47.00	-1152	338.	-1451	217.
A	DB			+3.23	4.88	0.590	2.17	+3.00	2.780

REMARKS:

GENERIC PART NUMBER: 111

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\*\*\*\*\*  
 GENERIC PART NUMBER: 111  
 \*\*\*\*\*  
 TECHNOLOGY REF. NO. RECORD  
 34 1190  
 FUNCTION  
 BIPOLAR  
 VOLTAGE COMPARATOR  
 SPECIFICATION DATA SOURCE  
 IRT CORP  
 PART NUMBER  
 CA111T  
 MANUFACTURER  
 R C A

LDC RAD. TYPE PART QTY. BIAS  
 NONE CO-60 4 UNK.  
 CUM. DOSE (RADS): 0  
 MEAN SD 50K 120K 300K  
 MEAN SD MEAN SD MEAN SD  
 -1.90  
 PARAMETERS  
 MEAN SD  
 -.320 -1.00  
 D VOS MV  
 -.13

REMARKS:

\*\*\*\*\*  
 TECHNOLOGY REF. NO. RECORD  
 24-22 1280  
 FUNCTION  
 BIPOLAR  
 VOLT COMPARATOR  
 SPECIFICATION DATA SOURCE  
 COMMERCIAL ROCKWELL  
 PART NUMBER  
 LM111AH  
 MANUFACTURER  
 NATIONAL

LDC RAD. TYPE PART QTY. BIAS  
 8016 CO-60 8  
 V+=INV-INPUT=OUTPUT=15V, V--15V, NONINV-INPUT=GND  
 CUM. DOSE (RADS): 0  
 MEAN SD 20K 30K 50K 100K  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 0.374 0.123 0.572 0.343 1.870 0.342 5.152 0.500  
 -4.96 6.644 -22.8 16.32 43.90 101.0 81.35 125.1  
 39.35 4.416 82.38 29.00 154.8 75.81 221.0 79.19  
 PARAMETERS  
 D VOS MV  
 D IOS NA  
 D IIB NA

REMARKS:

\*\*\*\*\*  
 LOT NUMBER: 111  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	VOLT COMPARATOR	BIPOLAR	24-21	1290

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM111AF	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
8008	CO-60	8	V+=INV-INPUT=OUTPUT=15V, V=-15V, NONINV-INPUT=GND

CUM.DOSE(RADS):									
		0		20K		30K		50K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D VOS	MV	-0.67	0.113	-0.74	0.132	0.015	0.190	-0.391	0.539
D IOS	NA	-26.4	36.96	-7.76	127.5	-239.	177.7	-140.	208.2
D IIB	NA	70.81	35.48	199.9	108.6	342.2	112.3	450.3	399.6

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	VOLT. COMPARATOR	BIPOLAR	24-20	1300

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
GENERAL ELECTRIC	LM111CHIP	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	7	V+=INV-INPUT=OUTPUT=15V, V=-15V, NONINV-INPUT=GND

CUM.DOSE(RADS):									
		0		10K		30K		100K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D VOS	MV	0.913	0.353	2.986	0.448	8.533	1.063		
D IOS	NA	29.68	4.814	75.34	29.16	93.95	65.15		
D IIB	NA	111.6	13.18	256.6	41.63	710.0	114.9		

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATORS	BIPOLAR	15	1660

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL SEMICON.	LM111 (10304BHA)		MOTOROLA

LDC	RAD. TYPE	PART QTY.	BIAS
7810	CO-60	4	V+=+15V, V-=-15V, VIN+=GND, VIN-=-+5V, VOUT=V+

CUM.DOSE(RADS):		0		25K		50K		100K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOL	K	500.0	0.0000	476.3	50.89	392.8	97.93	241.5	49.89
VIO	VO=2 MV	.9850	.3646	1.693	.9504	2.415	1.740	3.990	4.421
IIN	NA	24.00	7.036	280.5	44.25	638.8	105.4	1184.	244.7
IIO	NA	-.763	.2750	-30.8	42.92	-52.5	108.2	-43.8	182.3
ICC	MA	2.588	.6088	2.563	.6343	2.600	.6055	2.575	.6292
VSAT	V	.2065	.0064	.2110	.0050	.2228	.0053	.2378	.0046

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	VOLTAGE COMPARATOR	BIPOLAR	805-3	4470

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	LM111		TI

LDC	RAD. TYPE	PART QTY.	BIAS
7948	CO-60	9	UNK.

CUM.DOSE(RADS):		0		12.5K		25K		50K		100K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
-IB+	NA	53.11	6.79	204.1	55.70	208.3	46.85	222.2	41.13	243.9	42.14
-IOS	NA	-1.39	1.453	.667	2.960	1.944	5.413	3.555	5.027	5.667	9.173
-VOS	MV	.633	.304	.5052	.3409	.3652	.6388	.222	.7991	-.161	1.404
ISINK	MA	15.28	1.787	15.22	1.833	14.78	1.856	14.56	1.841	13.89	1.835

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	VOLT. COMPARTOR	BIPOLAR	1033	5350

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	AM111H		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7804*	CO-60	5	V+=12V; V--12V.

CUM. DOSE (RADS):	PARAMETERS	0		100K		300K		500K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOS(1)	MV	0.697	0.618	0.898	0.679	1.428	0.931	1.937	1.235
VOS(2)	MV	0.911	0.627	1.085	0.681	1.577	0.929	2.056	1.287
IOS	NA	-0.25	0.506	0.496	0.859	2.030	2.317	3.026	2.756
IB	NA	-38.7	0.777	-73.9	4.846	-100.	12.36	-121.	21.60
IOH	NA	0.072	0.008	3.540	0.885	37.00	16.52	26.00	7.036

REMARKS: \*EP. (1)V0=0.7V. (2)V0=3.7V.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	COMPARATOR	BIPOLAR	1037	5390

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	AM111H		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7652	CO-60	5	V+=+15V; V--15V.

CUM. DOSE (RADS):	PARAMETERS	0		100K		300K		500K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IOS	PA	14.00	2.850	9.36	2.302	4.500	2.092	3.750	3.228
IB	PA	103.2	19.83	160.4	29.62	350.2	68.40	430.2	211.9
THL	NS	404.4	26.48	406.0	25.96	404.2	23.89	422.4	23.43
TLH	NS	278.0	26.87	280.0	28.28	279.0	32.92	274.8	36.12

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
111	PRECISION COMPARATR	BIPOLAR	1067	5690

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	AM111H		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
A7:	CO-60 + N*	10	V+=+15V; V=-15V.

CUM. DOSE (RADS):		O	*N+100K		*N+300K		*N+500K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
VO(SAT)	V	.6942	.0266	.7188	.0257	.7300	.0294	.7352	.0287
VDS	MV	1.435	1.064	1.620	1.044	1.944	.8920	2.274	.9069
IDS	NA	.1630	.5958	.1060	6.159	2.817	4.356	4.450	4.401
IB	NA	-36.4	4.425	-133	13.21	-163	18.79	-184	26.41

REMARKS: \*NEUTRON RAD. = 6.E11 N/50CM.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
112	OP AMP	BIPOLAR	35	1040

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRO	LM112H		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	CO-60	5	V+=+5V

CUM. DOSE (RADS):		O	13K		52K		170K		360K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIO	MV	-1.10	-1.00	-1.10	-1.10	-1.20	-1.10	-1.10	-1.10	-1.10
IIO	NA	0.040	0.050	0.030	0.370	1.200	0.370	1.200	0.370	1.200
IB	NA	0.900	1.200	2.100	4.800	10.20	4.800	10.20	4.800	10.20
IQ	MA	0.370	0.370	0.370	0.370	0.370	0.370	0.370	0.370	0.370
GBW	KHZ	571.0	558.0	552.0	498.0	474.0	498.0	474.0	498.0	474.0

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
113	REFERENCE DIODE	BIPOLAR	1048	5500

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM113		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7746	CO-60	5	-LEAD @+5V; +LEAD VIA 10K TO GND.

CUM. DOSE (RADS):		0		100K		300K		500K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VR@1MA	1234.	15.45	1230.	14.99	1226.	14.79	1227.	16.53		
VR@12MA	1234.	14.99	1234.	14.91	1231.	14.63	1228.	14.26		

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
11331	ANALOG SWITCH	BIFET	37-1	140

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LF11331		IRT

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60 + N	5	YES, BUT EXACT LEVEL UNKNOWN.

CUM. DOSE (RADS):		0		500K*		1.25M**		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
RON ***	144.5	5.446	142.0	5.033	151.8	9.634		
IS(OFF)	NA	1.675	1.2217	1.150	1.291	1.725	1.3202	
ID(OFF)	NA	0.300	0.000	0.5750	0.0500	1.000	0.0816	
VINH	V	1.325	0.173	1.360	0.183	1.423	0.263	
VINL	V	1.313	0.171	1.313	0.222	1.338	0.150	
ICC	MA	3.558	6323	6.415	1.270	3.580	6407	
---PARAMETERS CONT.		ON		REC.		141.		

REMARKS: \*\*1.3E12 N/SQCM. \*\*\*2.5E12 N/SQCM. \*\*\*CONTROL DATA ON RECORDS 144-7

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GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
11331      ANALOG SWITCH      BIFET      37-1      141

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
NATIONAL      LF11331

-----  
LDC    RAD. TYPE    PART QTY.    BIAS  
-----

CUM. DOSE (RADS):      0      500K\*      1.25M\*\*  
-----  
PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
-----  
IEE      MA      1.990    .3536    5.025    1.142    2.215    .3911  
TON      NS      832      131      996      100      986      98  
TOFF      NS      84      4      93      9      97      8

PARAMETERS  
AND DOSAGES  
CONTINUED, ON    REC. 142.  
REMARKS: \*\* + 1.3E12 N/SQCM.    \*\* + 2.5E12 N/SQCM.    CONTINUED FROM RECORD 140.

\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
11331      ANALOG SWITCH      BIFET      37-2      142

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
NATIONAL      LF11331

-----  
LDC    RAD. TYPE    PART QTY.    BIAS  
-----

4      -- DIFFERENT SET OF 4 PARTS USED FOR THESE LEVELS.  
-----  
CUM. DOSE (RADS):      0      144K\*      250K\*\*  
-----  
PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
-----  
RON      OHM      146      6      142      5      152      10  
IS(OFF)      NA      1.7      0.2      1.15      0.13      1.73      0.32  
ID(OFF)      NA      0.32      0.04      0.58      0.05      1.00      0.08  
VINH      V      1.328      0.016      1.360      0.018      1.423      0.026  
VINL      V      1.314      0.015      1.313      0.022      1.338      0.015  
ICC      MA      3.558      0.632      6.415      1.270      3.580      0.641  
---PARAMETERS CONT. ON REC. 143.  
REMARKS: CONTINUED FROM REC. 141.    \* + 9.3E11 N/SQCM.    \*\* + 1.1E12 N/SQCM.

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\*\*\*\*\*  
 GENERIC PART NUMBER 11331  
 FUNCTION ANALOG SWITCH  
 TECHNOLOGY BIFET  
 REF. NO. RECORD 37-2 143  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER NATIONAL  
 PART NUMBER LF11331  
 SPECIFICATION  
 DATA SOURCE  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 \*\*\*\*\*

CUM. DOSE(RADS): 0 144K\* 250K\*\*  
 \*\*\*\*\*  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 IEE MA 1.990 0.354 5.023 1.146 2.215 0.391  
 TON NS 710 169 835 259 863 263  
 TOFF NS 73.8 6.3 90.3 5.6 95.0 8.2  
 \*\*\*\*\*

CONTROL DATA  
 ON RECORDS  
 144 THRU 147.

REMARKS: CONTINUED FROM REC. 142. \* + 9.3E11 N/SQCM. \*\* + 1.1E12 N/SQCM.  
 \*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER 11331  
 FUNCTION ANALOG SWITCH  
 TECHNOLOGY BIFET  
 REF. NO. RECORD 37-3 144  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER NATIONAL  
 PART NUMBER LF11331  
 SPECIFICATION  
 DATA SOURCE  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 \*\*\*\*\*

CUM. DOSE(RADS): 0 500K\*\*\* 1.25M\*\*  
 \*\*\*\*\*  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 RON OHM 137 135 138  
 IS(OFF) NA 1.6 0.7  
 ID(OFF) NA 0.1 0.1-  
 VINH V 1.30 1.37 1.38  
 VINL V 1.27 1.33  
 ICC MA 3.81 3.82 3.84  
 ---PARAMETERS CONT. ON REC. 145.  
 REMARKS: \*CONTROL SAMPLE. \*\*\* + 1.3E12 N/SQCM. \*\* + 2.5E12 N/SQCM.  
 \*\*\*\*\*

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GENERIC PART NUMBER: 11331

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\*\*\*\*\*  
 GENERIC PART NUMBER 11331  
 FUNCTION ANALOG SWITCH  
 TECHNOLOGY BIFET  
 REF.NO. RECORD 37-3 145  
 \*\*\*\*\*

MANUFACTURER NATIONAL  
 PART NUMBER LF11331  
 SPECIFICATION  
 DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS

CUM.DOSE(RADS): 0 500K\* 1.25M\*\*

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IEE	2.10		2.15		2.15			
TON	640		630		620			
TOFF	75		85		85			

CONTROL DATA  
 CONTINUED ON  
 RECORD 146.

REMARKS: CONT. FROM REC. 144. \* + 1.3E12 N/SQCM. \*\* + 2.5E12 N/SQCM.

\*\*\*\*\*  
 GENERIC PART NUMBER 11331  
 FUNCTION ANALOG SWITCH  
 TECHNOLOGY BIFET  
 REF.NO. RECORD 37-3 146  
 \*\*\*\*\*

MANUFACTURER NATIONAL  
 PART NUMBER LF11331  
 SPECIFICATION  
 DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS

CUM.DOSE(RADS): 0 144K\* 250K\*\*

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
RON	137		135		138			
IS(OFF)	NA		0.7		0.7			
ID(OFF)	NA		0.1		0.1			
VINH	V		1.30		1.37			
VINL	V		1.27		1.33			
ICC	MA		3.81		3.82			
---PARAMETERS	CONT.		ON		REC.			
REMARKS:	CONT.		FROM REC.		145.			

REMARKS: CONT. FROM REC. 145. \* + 9.3E11 N/SQCM. \*\* + 1.1E12 N/SQCM.

\*\*\*\*\*  
 GENERIC PART NUMBER: 11331

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GENERIC PART NUMBER: 11331  
 FUNCTION: ANALOG SWITCH  
 TECHNOLOGY: BIFET  
 REF. NO. RECORD: 37-3 147

MANUFACTURER: NATIONAL  
 PART NUMBER: LF11331  
 SPECIFICATION: DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE(RADS): 0 144K\* 250K\*\*

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IEE	MA	2.10	2.15	2.15	2.15	2.15	2.15	2.15
TON	NS	640	630	620	620	620	620	620
TOFF	NS	75	85	85	85	85	85	85

END OF  
 CONTROL  
 DATA.

REMARKS: CONT. FROM REC. 146. \* + 9.3E11 N/SQCM. \*\* + 1.1E12N/SQCM.

GENERIC PART NUMBER: 11331  
 FUNCTION: QUAD ANALOG SWITCH  
 TECHNOLOGY: BIFET  
 REF. NO. RECORD: 1045 5470

MANUFACTURER: NATIONAL  
 PART NUMBER: LF11331D  
 SPECIFICATION: DATA SOURCE TRW

LDC RAD. TYPE PART QTY. BIAS

7752 CO-60 5 V+(PIN 12)=+15V; V-(PIN 5)=-15V.

CUM. DOSE(RADS): 0 100K 300K 500K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
RON	OHMS	168.8	12.40	173.4	5.000	183.2	19.34	210.0
IS(OFF)	NA	0.430	0.045	1.480	0.303	2.360	1.276	3.340
T(ON)(1,2)	NS	391.0	123.4	520.0	274.2	792.0	752.3	2084.3
T(OFF)(1,2)	NS	55.40	0.548	49.00	1.414	47.20	1.789	47.80
T(ON)(1,3)	NS	555.0	222.5	753.0	427.7	1224.1	1252.1	2354.1
T(OFF)(1,3)	NS	47.70	4.577	47.20	4.604	44.60	2.967	40.00

REMARKS: (1)VIN=-3V, VR=0, VEE=-15V. (2)VCC=+15V, VS=+5V. (3)VD=-8V, VS=-5V.

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\*\*\*\*\*  
 GENERIC PART NUMBER: 117  
 \*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER 117  
 FUNCTION 3-TERM ADJ REGULATR  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 805-4 4480  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER NSC  
 PART NUMBER LM117H  
 SPECIFICATION  
 DATA SOURCE TI  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 109 CO-60 6 UNK.  
 \*\*\*\*\*

CUM. DOSE(RADS): 0 12.5K 25K 50K 100K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 LOAD REG MV 15.33 5.164 16.33 5.164 17.08 6.646 17.00 7.958  
 VOUT V 5.055 0.138 5.063 0.144 5.051 0.153 5.044 0.163  
 LINE REG MV 11.43 7.202 12.83 1.025 13.12 1.208 13.48 1.437 14.80 1.700  
 \*\*\*\*\*

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER 117  
 FUNCTION VOLTGE REGULATOR  
 TECHNOLOGY JFET  
 REF. NO. RECORD 1006 5050  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER NATIONAL  
 PART NUMBER LM117K  
 SPECIFICATION  
 DATA SOURCE TRW  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 8112 CO-60 5 VIN=40V(O.1UF TO GND), ADJ VIA 1K TO GND  
 \*\*\*\*\*

CUM. DOSE(RADS): 0 50K 100K 200K 300K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 LOAD REG MV 6.8 1.3 6.2 0.4 7.4 0.5 8.2 1.3 9.0 1.4  
 LINE REG MV 3.4 1.9 2.2 0.4 5.8 3.8 9.4 5.0 12.0 5.1  
 VD V 5.134 0.067 5.133 0.069 5.132 0.070 5.126 0.070 5.120 0.072  
 \*\*\*\*\*

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 117  
 \*\*\*\*\*

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\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
118      FET SWITCH (6 CHAN)      CMOS      24-45      1200

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
SILICONIX      G118      COMMERCIAL      ROCKWELL

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
7920      CO-60      2      PINS 1,2,3 (G1,G2,G3) TO -20V, EACH VIA 100KOHM, \*

\*\*\*\*\*  
CUM. DOSE (RADS):      0      20K      50K      100K      200K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
D RDS(ON) OHMS      3.433      0.337      7.383      1.294      13.55      3.992      103.1      18.31  
D IGSS      NA      -146      0.094      -296      0.114      0.638      0.158      -122      0.154  
D IS(OFF)      NA      0.395      0.030      0.391      0.026      1.198      0.061      0.783      0.137  
D VGS-TH      V      1.671      0.103      3.185      0.187      4.787      0.283      7.415      1.028

\*\*\*\*\*  
REMARKS: \* ALL OTHER PINS (4 THRU 14) @ GND (I.E., G4-G6,B,D, AND S1-S6).  
\*\*\*\*\*

\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
118      OP-AMP      BIPOLAR      24-23      1270

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
NATIONAL      LM118H      COMMERCIAL      ROCKWELL

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
8016      CO-60      8      V+=15V, V--=-15V, NONINV-INPUT=5V, INV-IN=OUT

\*\*\*\*\*  
CUM. DOSE (RADS):      0      30K      100K      300K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
D VDS      MV      -1.41      0.173      16.42      28.78      -1.30      0.658  
D IOS      NA      -17.7      16.97      -23.8      27.49      -12.5      19.52  
D IIB      NA      37.10      11.64      106.3      43.46      210.8      24.60

\*\*\*\*\*  
REMARKS:  
\*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
118	OP AMP	BIPOLAR	25-6 1600

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	LM118		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7510P	CO-60	5	V+=15V, V--15V, TYPICAL APPLICATION CIRCUIT

CUM. DOSE (RADS): 0 13K 52K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIO MV	1		1					
IIO NA	1.0		0.6					
IB NA	189		198					
IO MA	6.0		6.1					
GBW KHZ	14929		14302					

FAIL\*  
 FAIL\*  
 FAIL\*  
 FAIL\*  
 FAIL\*

REMARKS: \*ALL DEVICES HAD FAILED WITH OUTPUT LATCHED TO NEGATIVE SUPPLY VOLTAGE

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
118	OP-AMP	BIPOLAR	12 1690

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL SEMICONDUCT	LM118H		MOTOROLA

LDC	RAD. TYPE	PART QTY.	BIAS
7820	CO-60	4	V+=20V, V--20V, VIN+=3V, VIN-=VO, RL=2K

CUM. DOSE (RADS): 0 25K 50K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOL K	225.8	52.70	246.5	76.43	263.3	104.1		
VIO MV	1.210	1.008	1.100	1.037	1.069	1.078		
IIN+ NA	96.25	16.07	127.0	23.92	134.5	39.00		
IIO NA	-250	1.500	.5000	1.732	1.750	2.217		
ICC+ MA	6.075	.3594	6.150	.4435	6.100	0.416		

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
118	OP AMP	BIPOLAR	805-5 4490

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	LM118		TI

LDC	RAD. TYPE	PART QTY.	BIAS
*	CO-60	5	UNK.

CUM. DOSE (RADS):		0		12.5K		25K		50K		100K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
-VDS	MV	800	1.471	802	1.472	774	1.472	786	1.473	786	1.482
-IBIAS	NA	143.10	37	147	11.58	163.8	11.26	197.8	16.04	245.6	24.87
-IOS	NA	.6	1.517	1.3	2.092	1.14	2.175	.12	2.570	-1.54	4.119
AOL	DB	110.5	5.553	113.1	6.061	113.8	5.779	118.4	8.019	116.0	8.285

REMARKS: \*7940,7902.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
118	OP AMP	BIPOLAR	1007 5060

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM118		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7734	CO-60	4	V+=15V, V-=-15V, IN- 10K TO GND, IN+ 6.8K TO GND.*

CUM. DOSE (RADS):		0		100K		150K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD
AVOL	DB	108.3	2.22	109.8	2.87	104.5	3.97
VDS	MV	-0.94	0.579	-2.76	2.341	-5.15	4.230
IOS	NA	-0.78	6.53	-8.08	6.00	-12.7	6.25
IB	NA	126.3	21.2	226.8	52.4	266.5	61.0

REMARKS: \* RF=20K, VOUT 10K TO GND.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
119	DUAL COMPARATOR	BIPOLAR	1-86 630

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

CUM. DOSE(RADS):	O	75K		150K		300K	
		MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS							
DVOS MV		.37	.2220	.53	.3286	.72	.4484
DIOS NA		5.2	4.254	6.2	7.368	11.6	4.792
DIB NA		130.	6.127	235.	12.22	390.	16.86
ISINK MA	19.4	18.16	.4041	17.56	.4203	17.2	.3948

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
119	DUAL COMPARATOR	BIPOLAR	1-87 640

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

CUM. DOSE(RADS):	O	75K		150K		300K	
		MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS							
DVOS MV		.445	.3072	.58	.3534	.745	.3632
DIOS NA		14.7	11.19	17.3	12.44	19.1	6.115
DIB NA		122.	16.41	198.	17.60	318.	28.67
ISINK MA	17.2	17.12	.6377	16.52	.5909	16.	.6602

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
119	DUAL COMPARATOR	BIPOLAR	1-88	650

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

CUM. DOSE (RADS):	0		75K		150K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS								
DVOS MV			.47	.4672	.63	.6679	.73	.6564
DIOS NA			12.	7.718	22.	14.32	27.6	27.72
DIB NA			130.	14.66	230.	22.75	370.	36.57
ISINK MA	20.		19.08	.6898	18.56	.7500	18.02	.7703

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
119	DUAL COMPARATOR	BIPOLAR	1-89	660

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

CUM. DOSE (RADS):	0		75K		150K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS								
DVOS MV			.18	.1549	.16	.1240	.46	.1436
DIOS NA			10.	8.362	13.8	9.180	22.8	13.60
DIB NA			120.	13.29	200.	12.65	320.	15.00
ISINK MA	20.2		19.76	.7937	19.37	.8062	19.06	.8266

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
119	DUAL COMPARATOR	BIPOLAR	1-90 670

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNKNOWN.

PARAMETERS	75K		150K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV	.258	.1290	.288	.1821	.37	.3245
DIOS NA	10.	8.131	20.	12.03	34.5	4.869
DIB NA	130.	8.608	220.	17.09	345.	28.63
ISINK MA	21.05	1.069	20.78	1.102	20.38	1.012

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
119	DUAL COMPARATOR	BIPOLAR	1-91 680

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

PARAMETERS	75K		150K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV	.21	.0658	.23	.1703	.54	.2044
DIOS NA	8.7	4.835	14.6	6.962	15.8	9.618
DIB NA	130.	6.817	220.	3.930	360.	22.55
ISINK MA	19.3	18.82	18.44	.4787	18.2	.6238

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
119	DUAL COMPARATOR	BIPOLAR	1-92 690

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

CUM. DOSE (RADS): 0 75K 150K 300K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV	2	.2058	.3	.2895	.54	.4142		
DIOS NA	5.5	3.579	14.5	9.059	27.5	19.57		
DIB NA	115	19.21	215	35.27	355	61.04		
ISINK MA	15.1	15.62	15.22	.5627	14.92	.6377		

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
119	DUAL COMPARATOR	BIPOLAR	1-93 700

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

CUM. DOSE (RADS): 0 75K 150K 300K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV	.39	.4410	.54	.4832	.69	.3795		
DIOS NA	26	14.02	42	15.15	68	3.940		
DIB NA	172	30.68	298	46.93	470	71.12		
ISINK MA	14.2	14.7	13.72	.1826	13.39	.1893		

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
119	DUAL COMPARATOR	BIPOLAR	1-94	710

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

PARAMETERS	75K		150K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
CUM. DOSE (RADS):	0					
DVDS MV	.11	.0202	.24	.0762	.34	.1038
DIDS NA	10.2	6.826	18.3	13.56	29.9	14.50
DIB NA	155.	12.94	275.	25.95	450.	34.60
ISINK MA	14.4	14.29	14.04	.3403	13.72	.3559

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
119	DUAL COMPARATOR	BIPOLAR	1-95	720

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

PARAMETERS	75K		150K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
CUM. DOSE (RADS):	0					
DVDS MV	.31	.3242	.31	.3323	.445	.3909
DIDS NA	16.	6.758	29.5	13.60	46.	28.72
DIB NA	160.	13.63	285.	23.92	465.	31.68
ISINK MA	14.5	14.64	14.27	.3000	13.99	.2630

REMARKS:

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GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
119      DUAL COMPARATOR      BIPOLAR      1-96      730  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
ADVANCED MICRODEVICE      LM119      JPL  
\*\*\*\*\*

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
NONE      2.5MEV EL      4      UNK.  
\*\*\*\*\*

CUM. DOSE (RADS):      0      75K      150K      300K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
DVDS MV      .068      .0641      .108      .0710      .214      .1855  
DIOS NA      6.4      10.10      10.6      14.12      23.      19.65  
DIB NA      98.      7.573      175.      14.56      300.      32.83  
ISINK MA      15.3      15.17      1.034      14.99      1.024      14.72      1.033  
\*\*\*\*\*

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
119      DUAL COMPARATOR      BIPOLAR      1-97      740  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
ADVANCED MICRODEVICE      LM119      JPL  
\*\*\*\*\*

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
NONE      2.5MEV EL      4      UNK.  
\*\*\*\*\*

CUM. DOSE (RADS):      0      75K      150K      300K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
DVDS MV      .248      .2409      .412      .2974      .439      .3207  
DIOS NA      6.4      7.038      11.      9.462      20.4      13.94  
DIB NA      130.      10.55      235.      21.28      375.      35.04  
ISINK MA      15.14      .4856      14.84      .4272      14.49      .5123  
\*\*\*\*\*

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
119	DUAL COMPARATOR	BIPOLAR	1-98	750

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	75K		150K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
D/OS MV	.155	.0856	.26	.1079	.5	.0755
D/OS NA	4.4	3.700	13.6	8.241	18.6	17.10
D/IB NA	155.	10.05	270.	19.66	440.	29.59
ISINK MA	16.2	15.92	15.57	.1915	15.07	.1915

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
119	DUAL COMPARATOR	BIPOLAR	1-99	760

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	75K		150K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
D/OS MV	.2	.1701	.241	.1856	.264	.1246
D/OS NA	5.	3.828	10.8	7.925	16.8	12.62
D/IB NA	125.	22.48	225.	43.25	365.	49.91
ISINK MA	15.3	15.44	15.24	.2217	14.99	.1893

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
119	DUAL COMPARTOR	BIPOLAR	1-100	770

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

PARAMETERS	CUM. DOSE (RADS):							
	0		75K		150K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOS MV			.074	.0818	.112	.1027	.129	.0721
AIOS NA			5.6	2.231	12.4	7.213	20.4	22.62
IB NA			92.	30.19	160.	49.98	270.	88.21
ISINK MA	16.4		16.49	1.124	16.34	1.159	16.02	1.208

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
119	DUAL COMPARATOR	BIPOLAR	1-101	780

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM119		JPL

DC	RAD. TYPE	PART QTY.	BIAS
ONE	2.5MEV EL	4	UNK.

PARAMETERS		O		75K		150K		300K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOS MV				.112	.1184	.228	.3156	.28	.3572
IOS NA				9.5	3.728	21	10.82	38	21.18
IB NA				105	10.51	195	15.55	330	19.94
ISINK MA				14.96	.5000	14.76	.5000	14.46	.5000

REMARKS:



GENERIC PART NUMBER: 120

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\*\*\*\*\*  
 GENERIC PART NUMBER 120  
 FUNCTION 3-TERM NEG REGULATR  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 805-7 4510  
 \*\*\*\*\*

MANUFACTURER NSC  
 PART NUMBER LM120H-5  
 SPECIFICATION TI  
 DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS  
 8009 CO-60 6 UNK.

CUM. DOSE (RADS): 0 12.5K 25K 50K 100K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 LOAD REG MV 19.33 1.329 20.58 1.393 23.17 5.407 25.42 5.737 24.00 2.869  
 VOUT V 4.989 .0210 4.990 .0220 4.992 .0224 4.993 .0227 4.995 .0229  
 LINE REG MV 4.300 .4858 4.583 .6616 4.717 .5980 4.683 .6969 5.267 .5391

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER 121  
 FUNCTION PRECISION PRE-AMP  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 1018 5180  
 \*\*\*\*\*

MANUFACTURER NATIONAL  
 PART NUMBER LM121  
 SPECIFICATION TRW  
 DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS  
 013 CO-60 5 V+=15.OV, V--=15.OV.

CUM. DOSE (RADS): 0 100K 200K 500K 1MEG  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 VOS MV -0.09 0.354 -0.06 0.360 0.087 0.757 -0.19 1.649 -0.07 1.365  
 IOS NA -0.01 0.479 -0.01 0.573 0.319 0.946 0.139 2.401 1.515 3.078  
 IB NA 8.504 2.370 18.80 5.188 32.44 7.720 71.16 14.89 105.4 23.99  
 AVOL 1HZ DB 121.1 0.13 120.6 0.34 121.0 0.69 121.3 0.86 120.8 1.18

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 121  
 \*\*\*\*\*

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GENERIC PART NUMBER: 1210

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1210	12-BIT A/D CONVERTER.	CMOS	1-15	1100

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	ADC1210		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7840	CQ-60	2	V+ = 10V, V- = -10V, VREF = 10.000V.

CUM DOSE(RADS): 0 20K

PARAMETERS	MEAN		SD		MEAN		SD		MEAN		SD	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD		
INL (MAX)	NA		0.280		0.615							
INH (MAX)	NA		0.745		0.545							
VOH (MIN)	V		9.97		FAIL							
VOL (MAX)	V		0.63		FAIL							
ISK (MIN)	MA		8.99		FAIL							
ISC (MIN)	MA		15.10		FAIL							
ICC (MAX)	MA		3.77		3.76							

REMARKS: MEAN = WORST-CASE (NOT AVERAGE). PARAMETERS CONTINUED ON RECORD 1101

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1210	12-BIT A/D CONVERTER	CMOS	1-15	1101

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	ADC1210		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7840		2	V+=10V. V-=-10V. VREF=10.000V.

CUM. DOSE (RADS):	0	20K
1		
2		
3		
4		
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97		
98		
99		
100		

PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IEE (MAX)	MA	2.00		1.96					
LINEARITY ER-									
ROR (MAX)	%	0.020		FAIL					
FULL-SCALE									
ERROR (MAX)	%	0.055		FAIL					
ZERO-SCALE									
ZERO-SCALE	%	0.031		FAIL					

REMARKS: PARAMETERS CONTINUED FROM RECORD 1100: CONTINUED ON 1102.

\*\*\*\*\*



GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1210	12-BIT A/D CONVRTR.	CMOS	1-15	1102

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	ADC1210		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE(RADS): 0 20K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
CLOCK								
FREQUENCY (MINIMUM)								
KHZ	200							
								FAIL

REMARKS: CONTINUATION FROM RECORD 1101.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1210	12-BIT A/D CONVRTR.	CMOS	1-16	1110

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	ADC1210		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7840	CO-60	2	V+=10V, V--=10V, VREF=10.000V.

CUM. DOSE(RADS): 0 3K 7K 15K 20K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
INL(MAX)	NA	0.195	0.370	0.370	0.325	0.370	0.370	0.370	0.370	0.370
INH(MAX)	NA	0.810	0.765	0.765	0.635	0.625	0.625	0.625	0.625	0.625
VOL(MIN)	V	9.97	9.97	9.97	9.94	9.76	9.76	9.76	9.76	9.76
VOL(MAX)	V	0.700	0.900	0.900	20.0	107	107	107	107	107
ISK(MIN)	MA	9.21	9.39	9.39	9.23	8.28	8.28	8.28	8.28	8.28

--PARAMETERS CONT. ON REC. 1111.  
REMARKS: \*MEAN=WORST-CASE VALUE (NOT AVG.) @V+=10V, V--=15V, VREF=10.000V.

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GENERIC PART NUMBER 1210  
FUNCTION 12-BIT A/D CONVRTR.  
TECHNOLOGY CMOS  
REF. NO. RECORD 1-16 1111

MANUFACTURER NSC  
PART NUMBER ADC1210  
SPECIFICATION  
DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS): 0

PARAMETERS	MEAN	SD	3K	7K	15K	20K
ISC(MIN) MA	14.90		14.53	14.04	12.95	FAIL
ICC(MAX) MA	3.87		3.91	5.23	10.54	FAIL
IEE(MAX) MA	2.13		2.14	2.11	2.10	FAIL
LINEARITY- ERROR(MAX) %	0.028		0.320	0.125	1.070	FAIL
FULL-SCALE ERROR(MAX) %	0.021		0.240	0.409	2.83	FAIL

REMARKS: CONTINUATION FROM RECORD 1110. PARAMETERS CONTINUED ON RECORD 1112.

GENERIC PART NUMBER 1210  
FUNCTION 12-BIT A/D CONVRTR.  
TECHNOLOGY CMOS  
REF. NO. RECORD 1-16 1112

MANUFACTURER NSC  
PART NUMBER ADC1210  
SPECIFICATION  
DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS): 0

PARAMETERS	MEAN	SD	3K	7K	15K	20K
ZERO-SCALE ERROR(MAX) %	0.131		0.143	0.195	0.440	FAIL
CLOCK FREQUENCY (MIN) KHZ	200		200	200	200	FAIL
-- END OF PARAMETERS						

REMARKS: CONTINUATION FROM RECORD 1112.

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-----  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
122      PRECISION TIMER      BIPOLAR      1016      5160

-----  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
NATIONAL      LM122           TRW

-----  
LDC    RAD. TYPE    PART QTY.    BIAS  
-----  
8121    CO-60      5      VCC=5.3V, 50MS PULSE (2S. REP.) TO TRIGGER.

CUM. DOSE(RADS):      0      20K      50K      100K      200K  
-----  
PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
-----  
VOL      V      0.272 0.005    0.282 0.005    0.290 0.006    0.300 0.007    0.312 0.008  
PW      S      108.4 0.77    102.0 2.30    98.88 2.77    94.45 4.64    89.08 5.46  
PW      US    983.2 6.50    974.9 6.06    975.6 5.97    980.1 6.58    988.6 6.01

REMARKS:

-----  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
123      6-CH FET-SW DRIVER      BIPOLAR      1047      5490

-----  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
SILICONIX      D123AL           TRW

-----  
LDC    RAD. TYPE    PART QTY.    BIAS  
-----  
7606    CO-60      5      VEE(PIN 1)=-5V; PIN 2 VIA 5K TO +5V; PIN 13,14 \*

CUM. DOSE(RADS):      0      100K      300K      500K  
-----  
PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
-----  
VO(SAT)(1) MV    15.38 21.39    18.53 24.76    23.18 31.37    26.44 35.36  
IIN(1)      MA      0.905 0      0.900 0      0.906 0.002    0.899 0.002  
IINL(2)      NA      8.625 0.566    13.80 1.135    31.55 4.272    42.20 6.563  
VO(SAT)(2) MV    139.5 228.2    224.8 177.3    178.4 247.2    242.1 191.6  
ION(2)      NA      0.288 0.034    0.571 0.098    2.540 1.893    6.790 6.314

REMARKS: (1)VEE=-5V. (2)VEE=-20V. \*TO GND VIA 12.5K.

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\*\*\*\*\*  
 GENERIC PART NUMBER 124  
 FUNCTION OP AMP  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 40 110

\*\*\*\*\*  
 MANUFACTURER NATIONAL  
 PART NUMBER LM124F  
 SPECIFICATION DATA SOURCE IRT CORP

LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO-60 4 UNK.

CUM. DOSE (RADS): 0  
 PARAMETERS MEAN SD 30K 60K 300K  
 D VOS MV .6910 .1300 1.570 .2390 13.88 3.500  
 D IOS NA -.375 .1160 -1.92 5.420 -27.8 32.60  
 D IL NA -26.0 7.130 -62.0 16.50 -242. 69.40  
 D A DB -.775 1.280 -2.28 2.760 -11.3 .4270

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER 124  
 FUNCTION OP-AMP  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 24-25 1230

\*\*\*\*\*  
 MANUFACTURER NATIONAL  
 PART NUMBER LM124F  
 SPECIFICATION DATA SOURCE ROCKWELL COMMERCIAL

LDC RAD. TYPE PART QTY. BIAS  
 8016 CO-60 4 V+=15V, V-=GND, INV-INPUT=OUTPUT, NONINV-INPUT=5V

CUM. DOSE (RADS): 0  
 PARAMETERS MEAN SD 30K 100K 300K  
 D VOS MV 0.511 0.170 2.281 0.689 9.493 3.947  
 D IOS NA -.411 2.502 -3.74 15.88 7.315 47.32  
 D IIB NA 26.80 6.938 119.9 20.20 201.7 36.13

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
124	OP-AMP	BIPOLAR	24-24 1260

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	LM124	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
7852	CO-60	4	V+=15V, V-=GND, INV-INPUT=OUTPUT, NONINV-INPUT=5V

CUM.DOSE(RADS):	O	30K		100K		300K	
		MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS							
D VOS	MV	0.462	0.205	1.268	0.245	5.703	1.314
D IOS	NA	-132	3.807	-8.38	34.03	-25.4	71.85
D IIB	NA	22.86	4.489	65.05	28.47	207.6	46.12

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
124	QUAD OP AMP	BIPOLAR	99 1860

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NS	LM124J		WESTINGHOUSE

LDC	RAD. TYPE	PART QTY.	BIAS
B8113	CO-60	5	V+=+15V, V-= -15V

CUM.DOSE(RADS):	O	150K		400K		
		MEAN	SD	MEAN	SD	
PARAMETERS						
V10 V=5	MV	1.282	.8204	.4451	.9587	-2.65 2.109
I10 V=5	NA	.6650	5.676	-1.36	6.187	6.995 32.84
I1B V=5	NA	17.54	4.002	87.73	7.331	208.2 48.48
AVS V=15	V/MV	199.1	31.14	148.7	12.00	153.5 59.82
ICC V=30	MA	1.648	.0370	1.526	.0336	1.412 .0396
AVO V=30	DB	84.19	3.945	69.97	3.144	56.17 4.268

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
124	LOW PWR QUAD OP AMP	BIPOLAR	805-8	4520

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	LM124		TI

LDC	RAD. TYPE	PART QTY.	BIAS
8009	CO-60	4	UNK.

CUM. DOSE (RADS): 0 12.5K 25K 50K 100K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AOL DB	105.9	1.699	112.6	2.752	109.4	5.503	107.7	4.114	100.3	5.092
-(IB+)	12.03	5.976	42.03	9.928	62.06	15.25	91.19	27.39	119.4	39.72
VOS MV	7.163	1.131	8638	1.211	6550	1.241	1663	1.330	988	2.042
-(IOS)	1.056	2.986	1.472	4.215	1.875	3.798	-1.81	11.89	2.031	17.60

REMARKS: \*NEGATIVE OF PARAM. VALUE USED TO CONSERVE SPACE (FOR SIGNIFICANCE).

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
124	OP AMP	BIPOLAR	1008	5070

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	LM124D		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
8020	CO-60	8	VIN=0.6V(P-P) 1KHZ, RIN=10K, IN+ VIA 9.1K TO GND. *

CUM. DOSE (RADS): 0 100K 200K 500K 1MEG

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOL 1HZ DB	111.3	0.63	111.6	0.52	111.2	0.50	110.3	0.52	108.0	1.47
AVOL 1KHZ DB	57.68	0.55	57.06	0.34	56.61	0.27	57.24	0.80	58.23	1.45
AVOL 5KHZ DB	43.91	0.30	43.29	0.22	43.04	0.29	43.58	0.87	44.48	1.48
IOS NA	0.269	2.082	-0.22	2.095	-0.34	2.565	0.154	3.218	0.823	4.551
IB MV	-23.7	2.651	-45.2	2.276	-66.1	3.552	-114.	10.18	-169.	26.07
VOS MV	-0.07	0.569	-0.79	0.542	-1.56	0.550	-4.09	0.547	-6.38	0.543

REMARKS: \*RF=100K, VOUT TO GND VIA 10K, V+=15V, V-=-15V.

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\*\*\*\*\*  
 GENERIC PART NUMBER: 124  
 FUNCTION: 4-CHAN. ANALOG SW. MDS  
 TECHNOLOGY: 1024A  
 RECORD: 5262

\*\*\*\*\*  
 MANUFACTURER: PART NUMBER: SPECIFICATION: DATA SOURCE:  
 SILICONIX G124AL

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS):											
0											
PARAMETERS		MEAN	SD	50K		100K		200K		300K	
				MEAN	SD	MEAN	SD	MEAN	SD		
IGSS1*	PA	.5	.1	17.6	1.1	36.4	1.8	70.6	2.7	100.6	6.1
IGSS2*	PA	.4	.1	34.4	2.5	76.0	4.5	141.8	5.8	191.2	9.0
IGSS3*	PA	.4	.1	20.0	1.0	39.6	2.7	77.2	3.1	111.6	6.3
IGSS4*	PA	.4	.1	35.4	2.4	78.4	4.8	144.6	7.3	195.0	7.5

\*\*\*\*\*  
 REMARKS: CONTINUATION FROM RECORD 5261. \*VGS=-20V.

\*\*\*\*\*  
 GENERIC PART NUMBER: 126  
 FUNCTION: ANALOG GATE SWITCH BIFET  
 TECHNOLOGY: 8  
 RECORD: 1/10

\*\*\*\*\*  
 MANUFACTURER: PART NUMBER: SPECIFICATION: DATA SOURCE:  
 SILICONIX DG126AL MOTOROLA

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 7826 CO-60 4 V+=13V, V=-10V, PINS: 13=3.7V, 8,14=13V, 13=3.7V

CUM. DOSE (RADS): 0									
		90K		270K		1.35MEG			
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
RDS(ON)	OHM	23.79	2.597	22.45	1.878	22.85	1.813	23.63	1.755
ID(OFF)	UA	.0100	00000	.0100	00000	.0113	.0035	.0225	.0205
ID+IS(ON)	UA	.0100	00000	.0100	00000	.0100	00000	.0100	00000
ICC	UA	.0100	00000	8.750	10.03	18.11	10.46	13.54	10.19
IEE	UA	.0100	00000	8.750	10.03	18.14	10.47	13.74	10.22
IR	UA	.0100	00000	.0100	00000	.0100	00000	.0100	00000

\*\*\*\*\*  
 REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
129	FET SWITCH	BIFET	1-29	2940

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SILICONIX	DG129		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7738	CO-60	6	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	75K		150K		300K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IS(OFF)	NA		2.9	.5382	6.2	.6314	14	1.478
ID(OFF)	NA		3.4	1.038	6.5	1.365	14.5	2.025
ID(ON)+IS(ON)	NA		.88	1.086	.54	.2202	.70	.6112
RDS(ON)	OHM	28.3	30.0	1.818	29.7	1.944	30.0	2.064
							1.4	.2694
							30.3	1.835

REMARKS:

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
129	PRECISION REFERENCE	BIPOLAR	1046	5480

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM129BH		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7628	CO-60	5	PIN 1 VIA 5K TO +15V; PIN 2 TO GND.

CUM. DOSE (RADS): 0

PARAMETERS	100K		200K	
	MEAN	SD	MEAN	SD
V2	6.914	0.061	6.916	0.061

(@I2=2MA)

REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER: 139  
 FUNCTION: QUAD COMPARTOR  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1-102 790

\*\*\*\*\*  
 MANUFACTURER: PART NUMBER: SPECIFICATION: DATA SOURCE: JPL  
 ADVANCED MICRODEVICE LM139

LDC RAD. TYPE PART QTY. BIAS  
 \* CO-60 4 UNK.

CUM. DOSE (RADS): 0  
 PARAMETERS: 75K 250K 750K 2.5MEG  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 DVOS MV .34 .1484 .72 .1731 .96 .5202 1.96 1.296  
 DIOS NA 8. 2.099 29. 11.67 37. 13.11 24.5 26.50  
 DIB NA 105. 37.00 160. 47.55 260. 47.32 485. 48.67  
 ISINK MA 12.9 11.85 .1000 11. .2062 9.8 .6185 7.4 1.037

REMARKS: \*7745DP.

\*\*\*\*\*  
 GENERIC PART NUMBER: 139  
 FUNCTION: QUAD COMPARTOR  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1-103 800

\*\*\*\*\*  
 MANUFACTURER: PART NUMBER: SPECIFICATION: DATA SOURCE: JPL  
 ADVANCED MICRODEVICE LM139

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 4 UNK.

CUM. DOSE (RADS): 0  
 PARAMETERS: 75K 250K 750K 2.5MEG  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 DVOS MV 0 .1461 0 .2842 0 .4186 .33 637.1  
 DIOS NA 2. 2.027 6. 4.204 24. 7.353 88. 55.02  
 DIB NA 120. 13.19 240. 18.47 440. 24.16 660. 473.7  
 ISINK MA 12. 9.2 .3512 7.6 .2598 5.6 .2000 2.7 .5694

REMARKS:

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REF. NO.	RECORD
1-104	810

DATA SOURCE -----  
JPL

.....

	MEAN	SD
2.5MEG	2.6	1.050
	108.	27.13
	880.	182.7
	4.8	1.532

EF. NO. RECORD  
-105 820

PL	ATA SOURCE
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100	100

11

2.5MEG	
MEAN	SD
3.7	.4987
112.	28.89
780.	128.4
4.	.5552

GENERIC PART NUMBER: 139



\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF.NO. RECORD  
-----  
139      QUAD COMPARATOR      BIPOLAR      1-108      850

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
ADVANCED MICRODEVICE      LM139      JPL

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
NONE      2.5MEV EL      4      UNK.

\*\*\*\*\*  
CUM.DOSE(RADS):      0      75K      150K      300K      600K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
DVOS MV      .28      .0603      .42      .0909      .7      .1645      1.1      .2467  
DIOS NA      1.5      .5277      2.6      .8614      4.6      1.170      10.4      2.174  
DIB NA      76      2.813      112      6.415      164      11.40      256      19.89  
ISINK MA      16.7      15.15      .2630      14.55      .3403      13.3      .3500      11.75      .2944

\*\*\*\*\*  
REMARKS:  
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\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF.NO. RECORD  
-----  
139      QUAD COMPARATOR      BIPOLAR      1-109      860

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
ADVANCED MICRODEVICE      LM139      JPL

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
NONE      2.5MEV EL      4      UNK.

\*\*\*\*\*  
CUM.DOSE(RADS):      0      75K      150K      300K      600K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
DVOS MV      .26      .0451      .39      .0635      .64      .0928      10.5      .1415  
DIOS NA      2.2      .6053      3.2      1.176      5.9      1.870      12.8      2.161  
DIB NA      75      5.034      110      7.456      170      10.97      270      16.95  
ISINK MA      16.9      15.45      .7544      14.7      .8756      13.7      .6752      12.15      .5852

\*\*\*\*\*  
REMARKS:  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARATOR	BIPOLAR	1-110	870

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM139		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

CUM. DOSE (RADS):		75K		150K		300K		600K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVDS MV			.2	.1149	.28	.1553	.41	.2722	.69	.3880
DIOS NA			1.2	.7065	2.4	2.036	4.8	1.705	10.2	3.307
DIB NA			85.	77.32	175.	67.26	230.	66.65	310.	63.83
ISINK MA	16.6		14.3	1.135	13.4	1.408	12.4	1.464	10.9	1.415

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARATOR	BIPOLAR	1-111	880

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM139		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

CUM. DOSE (RADS):		75K		150K		300K		600K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVDS MV			.26	.0839	.4	.1251	.64	.1677	1.2	.2359
DIOS NA			1.2	.5248	1.65	.9884	3.2	.9095	8.	2.438
DIB NA			80.	10.20	120.	13.32	175.	19.07	260.	27.46
ISINK MA	17.2		15.7	.7274	15.4	.9592	14.1	.6602	12.6	.6245

REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER: 139  
 \*\*\*\*\*  
 FUNCTION: QUAD COMPARATOR  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1-112 890

\*\*\*\*\*  
 MANUFACTURER: ADVANCED MICRODEVICE  
 PART NUMBER: LM139  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 4 UNK.

CUM. DOSE(RADS): 0  
 75K 150K 300K 600K  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 PARAMETERS  
 DVOS MV .25 .1261 .46 .2086 .7 .3171 .88 .2617  
 DIOS NA 1.2 .8929 2.8 .6467 4.2 1.730 8.4 2.601  
 DIB NA 86. 25.94 82. 83.78 188. 29.48 272. 20.46  
 ISINK MA 14.9 13.35 .7805 12.65 .822 11.7 .8426 10.1 .9798

REMARKS:

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 GENERIC PART NUMBER: 139  
 \*\*\*\*\*  
 FUNCTION: QUAD COMPARATOR  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1-113 900

\*\*\*\*\*  
 MANUFACTURER: ADVANCED MICRODEVICE  
 PART NUMBER: LM139  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 4 UNK.

CUM. DOSE(RADS): 0  
 75K 150K 300K 600K  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 PARAMETERS  
 DVOS MV .25 .0556 .38 .0916 .61 .1468 1. .2225  
 DIOS NA 1.8 1.067 3.2 1.530 6. 2.022 12.4 3.847  
 DIB NA 85. 15.57 120. 19.53 135. 90.70 280. 34.22

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARATOR	BIPOLAR	1-114	910

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM139		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

CUM. DOSE(RADS): 0

PARAMETERS	75K		150K		300K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV	.26	.0756	.45	.1345	.72	.2062	1.16	.3095
DIOS NA	1.1	.0776	1.8	.5242	3.6	.6388	9.1	.7297
DIB NA	60.	19.55	92.	23.40	148.	29.30	236.	37.41
ISINK MA	15.7	14.6	1.455	13.8	1.367	12.8	1.383	11.3
								1.452

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARATOR	BIPOLAR	1-115	920

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADVANCED MICRODEVICE	LM139		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

CUM. DOSE(RADS): 0

PARAMETERS	75K		150K		300K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV	.3	.0418	.45	.0592	.74	.1268	1.18	.1839
DIOS NA	1.8	.0660	2.1	.3025	4.4	.8179	11.2	1.492
DIB NA	82.	10.08	120.	14.98	178.	22.87	270.	35.50
ISINK MA	15.2	13.5	.6652	12.7	.5909	11.5	.3697	9.9
								.2062

REMARKS:

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GENERIC PART NUMBER 139 FUNCTION QUAD COMPARATOR TECHNOLOGY BIPOLAR REF. NO. RECORD 1-116 930

MANUFACTURER ADVANCED MICRODEVICE LM139 PART NUMBER SPECIFICATION DATA SOURCE JPL

LDC RAD. TYPE PART QTY. BIAS NONE 2.5MEV EL 4 UNK.

CUM. DOSE (RADS): 0

PARAMETERS	75K		150K		300K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV	.22	.0471	.37	.1055	.58	.1848	.9	.2877
DIOS NA	1.5	.7684	2.4	1.225	3.8	1.521	8.4	2.784
DIB NA	82	13.15	116	17.70	170	24.80	260	36.27
ISINK MA	16.6	15.35	4349	14.8	6131	13.95	7848	12.65

REMARKS:

GENERIC PART NUMBER 139 FUNCTION QUAD COMPARATOR TECHNOLOGY BIPOLAR REF. NO. RECORD 1-117 940

MANUFACTURER ADVANCED MICRODEVICE LM139 PART NUMBER SPECIFICATION DATA SOURCE JPL

LDC RAD. TYPE PART QTY. BIAS NONE 2.5MEV EL 4 UNK.

CUM. DOSE (RADS): 0

PARAMETERS	75K		150K		300K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVOS MV	.2	.1091	.5	.1069	1.49	1.473	3.4	4.405
DIOS NA	.7	.3762	1	.5866	2	1.267	89	3.116
DIB NA	70	13.65	110	18.43	170	25.13	270	35.26
ISINK MA	14.5	13.6	3594	13.1	2500	12.3	3559	11.1

REMARKS:



\*\*\*\*\*  
 GENERIC PART NUMBER 139  
 FUNCTION QUAD COMPARTOR BIPOLAR  
 REF. NO. RECORD  
 1-120 970

\*\*\*\*\*  
 MANUFACTURER PART NUMBER SPECIFICATION DATA SOURCE  
 ADVANCED MICRODEVICE LM139 JPL

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 4 UNK.

CUM. DOSE (RADS): 0  
 75K 150K 300K 600K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 DVOS MV .2 .0993 .6 .6119 2.6 3.974 5.3 8.337  
 DIOS NA .8 .6920 1.7 1.520 5.2 2.434 13.6 8.020  
 DIB NA 82. 8.747 120. 12.53 185. 18.42 285. 24.77  
 ISINK MA 15. 14.54 1.024 14.22 .9832 15. 1.014 13.18 .8103

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER 139  
 FUNCTION QUAD COMPARTOR BIPOLAR  
 REF. NO. RECORD  
 1-121 980

\*\*\*\*\*  
 MANUFACTURER PART NUMBER SPECIFICATION DATA SOURCE  
 NATIONAL SEMI. LM139 JPL

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2M MEV EL 4 UNK.

CUM. DOSE (RADS): 0  
 12K 31K 62K 125K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 DVOS MV .0004 .0001 .0008 .0002 .0108 .0079 FAIL  
 DIOS NA .025 .0055 .006 .0041 .047 .0127 FAIL  
 DIB NA .1 .0167 .205 .0371 .31 .0360 FAIL  
 ISINK MA 11.4 6.95 .5389 4.55 .5196 3.3 .4329 FAIL

REMARKS:

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 GENERIC PART NUMBER 139  
 FUNCTION QUAD COMPARTOR  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 1-122 990

\*\*\*\*\*  
 MANUFACTURER PART NUMBER  
 SPECIFICATION  
 DATA SOURCE JPL  
 PRECISION MONOLITHIC LM139

LDC RAD. TYPE PART QTY. BIAS  
 7924 2.5MEV EL 4 UNK.

CUM. DOSE(RADS): 0  
 PARAMETERS MEAN SD 75K 150K 300K 600K  
 DVOS MV .8 .5534 2.5 .7262 4.25 .9473 4.35 1.599  
 DIOS NA 12. 6.603 78. 47.36 175. 58.23 245. 45.45  
 DIB NA 62. 53.00 124. 81.93 158. 66.92 162. 85.47  
 ISINK MA 9.97 6.15 .5560 4.35 .5188 3.4 .4041 3. .4717

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER 139  
 FUNCTION VOLT COMPARTOR  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 24-26 1240

\*\*\*\*\*  
 MANUFACTURER PART NUMBER  
 SPECIFICATION  
 DATA SOURCE ROCKWELL  
 NATIONAL LM139F  
 COMMERCIAL

LDC RAD. TYPE PART QTY. BIAS  
 8011 CO-60 8 V+=NONINV-INPUT(3.4)=INV-INPUT(1.2)=OUTPUT=15V \*

CUM. DOSE(RADS): 0  
 PARAMETERS MEAN SD 30K 100K 300K  
 DVOS MV -.155 0.728 -.544 2.033 -.020 4.864  
 DIOS NA -.108 2.042 -5.94 20.83 -3.93 172.1  
 D IIB NA 58.25 11.24 246.4 101.7 660.6 155.8

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	COMPARATOR-VOLT	BIPOLAR	14	1670

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	LM139		MOTOROLA

LDC	RAD. TYPE	PART QTY.	BIAS
7742	CO-60	3	2 DEVICES VDD=36V, VCC=30V; 1 DEVICE VDD=7V, VCC=5V

CUM. DOSE (RADS): 0 50K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOL V=15 K	372.2	110.0	268.8	100.3				
IIO V=7 NA	-.088	1.002	.1292	1.925				
IIO V=30 NA	-.108	.8393	-.242	1.403				
IIN V=7 NA	26.18	3.706	47.42	2.891				
ICC V=7 MA	.7467	.0231	.7167	.0252				

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARATOR	BIPOLAR	11	1700

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SILICON GENERAL	SG139F		MOTOROLA

LDC	RAD. TYPE	PART QTY.	BIAS
7911	CO-60	9	UNBIASED.

CUM. DOSE (RADS): 0 10K 50K 100K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOL V=15 K	274.8	108.4	206.3	77.90	125.8	47.88	91.70	35.81
ICC V=15 MA	.9089	.1629	.8367	.1481	.7178	.1336	.6544	.1280
VIO V=7 MV	4.423	3.256	4.275	3.159	3.558	2.688	3.516	2.532
ICC V=7 MA	.8567	.1494	.8067	.1370	.6833	.1068	.6189	.1081
IIN V=7 NA	76.36	6.016	104.4	12.86	136.5	28.67	142.8	24.70
IIO V=7 NA	3.931	4.389	5.194	4.748	6.278	5.715	5.278	7.884

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARATOR	BIPOLAR	401-4	1760

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
UNKNOWN.	LM139		INSAT PCC 860

LDC	RAD. TYPE	PART QTY.	BIAS
7939D	CO-60	5	UNK.

CUM. DOSE (RADS) :		0		16K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD
V10			1.814	.3487		
NA			2.740	2.157		
IB+			167.8	18.25		
VSAT			.2160	.0114		

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARATOR	BIPOLAR	100	1760

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	LM139J		WESTINGHOUSE

LDC	RAD.	TYPE	PART QTY.	BIAS
7883B	C0-60		5	V+=+5V, V-=GND

CUM. DOSE(RADS):		0		400K	
PARAMETERS		MEAN	SD	MEAN	SD
WTOS	MV	1.100	.1563	.0935	.1352
LIB	NA	.336	.0182	.360	.0000
IOS	NA	.0465	.1360	.0365	.0137

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARATOR	BIPOLAR	301-4	1790

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
A M D	LM139AF		FORD A/S CORP.

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	V+=+15V

CUM. DOSE (RADS):		0		160K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN SD
D VIO	MV		-.080	.2695	
D IIO	NA		2.180	.8843	
D IB+	NA		89.02	29.01	
D V(SAT)	V		.0100	.0071	

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARATOR	BIPOLAR	301-3	1800

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	LM139AF		FORD A/S CORP.

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	V+=+15V

CUM. DOSE (RADS):		0		160K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN SD
D VIO	MV		19.20	.0217	
D IIO	NA		.3000	1.551	
D IB+	NA		69.20	2.851	
D V(SAT)	V		.0020	.0045	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARATOR	BIPOLAR	301-1	1810

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	LM139		FORD A/S CORP

LDC RAD. TYPE PART QTY. BIAS

UNK. CO-60 5 V+=+15V

CUM. DOSE(RADS): 0 160K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D VIO	MV		.2040	.4913				
D IIO	NA		3.260	2.810				
D IB+	NA		65.42	9.128				
D V(SAT)	V		.0280	.0148				

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARATOR	BIPOLAR	301-2	1820

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	LM139AF		FORD A/S CORP

LDC RAD. TYPE PART QTY. BIAS

UNK. CO-60 4 V+=+15V

CUM. DOSE(RADS): 0 160K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D VIO	MV		-.065	.0265				
D IIO	NA		-.600	.5477				
D IB+	NA		55.20	5.719				
D V(SAT)	V		.0125	.0096				

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARATOR	BIPOLAR	401-3	1830
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA	SOURCE
LINK.	LM139		INSAT	PCC 860

LDC	RAD. TYPE	PART QTY.	BIAS
79230	C0-60	5	V+=+15V

CUM.DOSE(RADS):	0	16K
0	0	0
16K	0	0

PARAMETERS	MEAN		SD		MEAN		SD		MEAN		SD	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
MV	-1.13	0.34	-1.01	0.34								
IIIO	-0.72	0.27	-1.22	0.38								
NA	34.72	3.71	86.80	11.51								
IB+												
VSAT	0.222	0.016	0.216	0.011								

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARATOR	BIPOLAR	805-10	4540
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
NSC	LM139A		TI	

LDC	RAD.	TYPE	PART	QTY.	BIAS
3021	C0-60		6		UNK.

CUM. DOSE (RADS):		0		12.5K		25K		50K		100K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
-(1B+)	*	21.50	3.03	61.33	5.483	89.33	6.443	135.0	16.03	175.8	23.97
I05	NA	-.208	2.179	.292	2.739	1.117	4.979	2.825	5.718	2.167	12.10
W05	NA	-.029	.9265	-.067	.9815	.0166	1.041	.1416	1.219	.1498	3.706
ISINK	NA	11.50	2.067	10.71	2.126	8.833	2.125	7.208	2.179	5.980	2.238

REMARKS: \*NEGATIVE OF PARAM. VALUE USED TO CONSERVE SPACE (FOR SIGNIFICANCE).

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO.	RECORD
139	QUAD VOLT COMPARATR	BIPOLAR	1011	5100
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
PMI	PM139A	TRW		

LDC RAD. TYPE PART QTY. BIAS  
 8147 CO-60 5 V+=12V, V-=GND=NON-INV INPUT. INV IN=1V. OUTPUT=NC.

CUM. DOSE (RADS):		0		30K		60K		100K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VDS (A)*	MV	0.46	0.31	0.60	0.54	0.62	0.57	1.18	0.91
IOS (A)	NA	5.98	1.59	2.69	2.38	11.03	7.20	44.44	29.97
IB (A)	NA	-72.8	15.60	-166.	29.93	-268.	62.52	-380.	158.9
VDS (B)	MV	1.1	0.8	1.0	0.5	0.9	0.4	0.9	0.4
IOS (B)	NA	4.51	2.23	2.45	1.18	15.29	13.00	30.45	30.07
IB (B)	NA	-78.8	16.4	-152.	25.	-204.	44.2	-222.	64.

REMARKS: \*4 COMPAR'S: A, B, C, D. DATA CONTINUED ON RECORD 5101.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO.	RECORD
139	QUAD VOLT COMPARATR	BIPOLAR		5101
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
PMI	PM139A			

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS):		0		30K		60K		100K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VDS (C)*	MV	0.5	0.2	0.5	0.1	0.7	0.2	1.1	0.4
IOS (C)	NA	2.45	1.53	7.03	4.70	26.23	19.74	60.28	19.47
IB (C)	NA	-76.6	16.2	-156.	27.	-226.	55.	-271.	105.
VDS (D)	MV	0.50	0.51	0.66	0.38	0.92	0.33	1.32	0.76
IOS (D)	NA	4.57	0.69	1.63	1.38	5.48	6.02	21.26	19.73
IB (D)	NA	-71.8	16.4	-153.	32.	-258.	77.	-380.	164.

REMARKS: \*DATA CONTINUED FROM RECORD 5100.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARTOR	BIPOLAR	1051	5530

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	UA139DB		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
8021	CO-60 + N*	10	V+=12V, V-=NONINV-INPUT=GND, 1V@INV-INPUT, N@OUTPUT.

CUM. DOSE (RADS):		O		*N+10K		*N+20K		*N+30K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOS	MV	0.723	0.495	0.910	0.708	1.948	1.418	3.255	2.920	
IOS	NA	0.722	0.689	4.687	3.075	14.91	12.09	31.54	32.21	
IB	NA	24.49	4.693	91.74						

REMARKS: ALL PARAMETERS AVG. OF 4 COMPARTORS. \*NEUTRONS: 6.E11 N/SQCM.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
139	QUAD COMPARTOR	BIPOLAR	1068	5700

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	AM139		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7816	CO-60 + N*	10	V+=+12V.

CUM. DOSE (RADS):		O		*N+100K		*N+300K		*N+500K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOS	MV	.135	.0775	.225	.150	.5975	.1350	1.255	.1825	
(VREF=1.4V)										
VOS	MV	.1438	.0708	.1955	.0853	.6395	.1320	1.342	.1868	
(VREF=.11V)										
VOS	MV	.1383	.0718	.2099	.0852	.6736	.1180	1.352	.1853	
(VREF=0.0V)										

SEE REC 5701.  
 REMARKS: \*NEUTRON RAD. = 6.E11 N/SQCM. \*\*ALL PARAMETERS ARE AVE. OF 4 COMPS.

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\*\*\*\*\*  
 GENERIC PART NUMBER: 139  
 FUNCTION: QUAD COMPARATOR  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1068 5701  
 MANUFACTURER: AMD  
 PART NUMBER: AM139  
 SPECIFICATION: DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS

N+100K

CUM. DOSE (RADS): 0 N+300K N+500K \*  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 IOS NA 2.373 2.147 2.284 2.078 2.476 1.474 4.111 2.520  
 IB NA 42.58 3.79 62.47 5.40 86.44 7.68 104.7 9.333  
 VSAT MV 9.56 1.185 17.94 1.748 30.02 2.578 42.24 4.205  
 IO MA 1.785 .2975 3.863 .495 5.535 .6625 6.633 .775

REMARKS: \*CONTINUATION OF REGRD 5700.

\*\*\*\*\*  
 GENERIC PART NUMBER: 140  
 FUNCTION: 3-TERM POS REGULATR  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 805-12 560

MANUFACTURER: NSC  
 PART NUMBER: LM140-5  
 SPECIFICATION: DATA SOURCE: TI

LDC RAD. TYPE PART QTY. BIAS

CO-60 UNK.

CUM. DOSE (RADS): 0 12.5K 25K 50K 100K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 LOAD REG MV 9.167 .2582 9.750 .4564 10.28 1.972 10.17 2.041 11.08 3.241  
 VOUT V 5.030 .0329 5.028 .0333 5.034 .0332 5.036 .0333 5.035 .0333  
 LINE REG\* MV .1833 .0408 .0667 .0577 .1833 .1571 .1003 .0796 .6250 .0639  
 LINE REG\*\* MV .417 .0753 .383 .1560 .308 .1486 .442 .1357 1.417 .1862

REMARKS: \*\*\*104 AND 107. \*\*VIN=10-15V, 15-20V. \*\*VIN=8 TO 20V.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
140	VOLTAGE REGULATOR	BIPOLAR	1027	5280
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
NATIONAL	LM140LAH-5	TRW		

LDC	RAD. TYPE	PART QTY.	BIAS
7841	CO-60	20	VIN=10V; VOUT=5V; RL=240OHMS.

CUM. DOSE (RADS):		0		100K		300K		500K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOUT(1)(2)	V	4.995	0.029	4.986	0.031	4.989	0.030	4.985	0.031
VOUT(1)(3)	V	4.993	0.028	4.983	0.030	4.985	0.030	4.980	0.032
VOUT(1)(4)	V	4.991	0.029	4.979	0.031	4.980	0.031	4.975	0.032
VOUT(5)(2)	V	5.000	0.028	4.988	0.030	4.992	0.037	4.990	0.031
VOUT(5)(4)	V	4.994	0.028	4.981	0.031	4.983	0.030	4.980	0.031

REMARKS: 1)VIN=7V. 2)IL=1MA. 3)IL=20MA. 4)IL=40MA. 5)VIN=6V. \*CONT ON REC 5281.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
140	VOLTAGE REGULATOR	BIPOLAR	1027	5281
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
NATIONAL	LM140LAH-5			

LDC	RAD. TYPE	PART QTY.	BIAS
-----	-----------	-----------	------

CUM. DOSE (RADS):		0		100K		300K		500K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOUT(6)(2)	V	5.004	0.028	4.991	0.030	4.997	0.030	4.995	0.030
VOUT(6)(4)	V	4.997	0.028	4.983	0.031	4.987	0.030	4.984	0.031
VOUT(7)(2)	V	5.009	0.028	5.001	0.030	5.010	0.030	5.010	0.029
VOUT(7)(3)	V	5.006	0.028	4.996	0.031	5.005	0.030	5.004	0.030
VOUT(7)(4)	V	5.001	0.029	4.990	0.031	4.998	0.031	4.997	0.031

REMARKS: CONTINUED FROM RECORD 5280. 6) VIN=10V. 7)VIN=20V.



GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
14051	8 CHANNEL MUX DEMUX	CMOS	25-31	1570

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MOTOROLA	MC14051R		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7719	CO-60	5	UNK.

CUM. DOSE (RADS):		0		12K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD
VO	5PASS		5PASS			
IL	5PASS		5PASS			
IIN	5PASS		5PASS			
IDD QUIESCENT	5PASS		5FAIL			
IDD DYNAMIC	5PASS		PASS*			
TLH	5PASS		PASS*			
TLH	5PASS		PASS*			

REMARKS: \*IDD AND TLH DEGRADED SIGNIFICANTLY IN ALL DEVICES UPON IRRADIATION.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
141	2-CH. ANALOG SWITCH	JFET	1026	5290

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SILICONIX	DG141AL		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7926	CO-60	10	PINS 1,7,11 @+10V; 8,14 VIA 10K TO GND; 9,13,10GND

CUM. DOSE (RADS):		0		25K		50K		75K		100K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IS(OFF)	PA	-45.3	71.49	-176.	33.90	-481.	9.342	-885.	80.79	-1445	22.45	
ID(OFF)	PA	-18.4	25.70	-256.	32.18	-99.1	61.81	-2314	138.9	-4245	325.9	
ID+IS(ON)	PA	17.71	15.88	34.58	8.289	68.37	9.037	105.0	19.04	144.6	26.29	
IN(LDW)	PA	-96.7	71.65	-337.	28.01	-598.	180.4	-1204	143.2	-1809	328.2	
IN(HI)	MA	-5.03	2.367	-7.14	2.677	-8.49	3.023	-9.46	3.220	-10.2	3.329	
RDS(ON)	OHMS	10.10	5.612	6.966	0.950	8.177	5.536	6.983	0.942	11.02	18.15	

REMARKS: ALL VALUES ARE AVERAGE OF 20 CHANNELS. CONT. JN REC. 5291.

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-----  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO.      RECORD  
-----  
15      OPERATIONAL AMP      BIPOLAR      401-8      1750  
-----

-----  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
PRECISION MONOLITHIC      OP-15           INSAT PCC 860  
-----

LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
UNK      CO-60      5      V+=7.5V, V--=7.5V, TYPICAL NEG FEEDBACK CIRCUIT  
-----

CUM.DOSE(RADS):      0      700K      800K      900K      1MEG  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
VDS      MV      -2.10      .6595      -2.20      .6595      -2.20      .6000      -2.26      .5369      -2.18      .6458  
IB-      NA      0.0      0.0      .7800      .8585      .4600      .2702      .0600      1.078      .8000      .9592  
-----

REMARKS:

-----  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO.      RECORD  
-----  
1524      REG PULSE WIDTH MOD      BIPOLAR      1014      5130  
-----

-----  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
SILICON GEN      SG1524           TRW  
-----

LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
8180      CO-60      5      VDD=+12V.  
-----

CUM.DOSE(RADS):      0      50K      100K      300K      500K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
V REF      V      5.064      0.021      5.060      0.018      5.060      0.019      5.060      0.019  
V SHUT-DOWN      V      0.828      0.025      0.825      0.026      0.823      0.027      0.821      0.025      0.820      0.026  
OSC F      KHZ      13.28      0.19      13.32      0.21      13.35      0.21      13.40      0.22      13.44      0.23  
OSC PW      NS      680.0      44.0      687.4      43.7      691.2      44.2      699.0      46.6      703.4      46.5  
VOH(12)      V      11.95      0.00      11.94      0.00      11.94      0.00      11.95      0.00      11.94      0.00  
VOL(12)      V      0.332      0.017      0.339      0.019      0.340      0.019      0.346      0.019      0.346      0.019  
PW (12)      MS      46.1      0.7      46.0      0.8      45.9      0.8      45.7      0.8      45.4      0.9  
-----  
REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
154	ANALOG SWITCH	JFET	1042	5440

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SILICONIX	DG154AL		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7623	CO-60	4	VCC=+15V; VEE=-15V; PINS: 13@+2.5V, 5.7@+7V, *

CUM. DOSE (RADS):	0	100K	300K	500K
PARAMETERS	MEAN	SD	MEAN	SD
ID(OFF)	NA	0.005	0.002	0.788
RDS(ON)	OHMS	24.53	1.449	23.04
IS(OFF)	NA	.0005	.0002	0.570
				0.484
				4.886
				3.977
				8.086
				7.787

REMARKS: \*1,2,3,6,8,14 @ -7V.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
154	ANALOG SWITCH	JFET	1043	5450

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
INTERSIL	DG154/A		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7640	CO-60	5	VCC=+15V; VEE=-15V; PINS: 13@+2.5V, 5.7@+7V, *

CUM. DOSE (RADS):	0	100K	300K	500K
PARAMETERS	MEAN	SD	MEAN	SD
ID(OFF)	NA	0.004	0.005	1.170
RDS(ON)	OHMS	21.78	5.136	22.89
IS(OFF)	NA	.0005	.0002	0.283
				0.197
				1.889
				1.664
				2.223
				1.849

REMARKS: \*1,2,3,6,8,14 @ -7V.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
155	OP AMP	BIFET	1052	5540

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LF155		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7741	CO-60 + N*	10	V+=+15V; V=-15V.

CUM. DOSE (RADS):		O		*N+200K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN
VOS (ABS) MV	.8732	.5805	13.39	39.41	
IOS (ABS) NA	.0011	.0009	60.36	94.23	
AVOL DB	116.5	2.52	117.3	7.85	

REMARKS: \*NEUTRON FLUENCE = 6.E11 N/SQCM. NOTE: FAILED PARAMETERS DELETED.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
155	OP AMP	BIFET	1053	5550

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LF155		

LDC	RAD. TYPE	PART QTY.	BIAS
7817	CO-60 + N*	10	V+=+15V; V=-15V.

CUM. DOSE (RADS):		O		*N+200K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN
VOS	.111	.8828	.2901	1.785	
AVOL	116.0	2.236	111.6	2.648	

REMARKS: \*NEUTRON FLUENCE = 6.E11 N/SQCM. NOTE: FAILED PARAMETERS DELETED.

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158	GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
		LOW PWR DUAL OP AMP	BIPOLAR	1100	5800
	MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
	NATIONAL	LM158		MARTIN-MARIETTA	

LDLC	RAD. TYPE	PART QTY.	BIAS
7827	CO-60**	6	V+=+5V.

CUM. DOSE (RADS) :		0		20K		50K		100K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
FUNCTIONALITY	6PASS		6PASS		MARG*		6FAIL		
WOS	.627	.412	.572	.321	.552	.252	.558	.130	
IIB*	19.92	17.85	14.19	17.05	9.675	16.68	7.09	16.3	
I0S*	1.18	1.11	.697	.865	.505	.929	.167	.553	

REMARKS: \*\*AND LINAC. \*"DEVICE FAILS BEYOND 50K...I3 AND IOS DATA MISLEADING."

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
159	OP AMP	BIPOLAR	1-31	1080
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA	SOURCE
RCA CORPORATION	G159R			JPL

ELDC	RAD. TYPE	PART QTY.	BIAS
0016	2.5MEV EL	4	UNK.

PARAMETERS	0		75K		250K		750K		2.5MEG	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOS MV	2.5		8.4	6.042	13.	9.781	12.5	9.430		
IIOS NA	1.45		17.5	9.574	10.2	13.00	18.5	14.82		
IIB NA	117.		185.	79.32	290.	108.0	460.	197.4		
GAIN DB	101.		100.	1.323	100.	2.861	100.	2.401		
GAIN DB	102.		92.	12.71	96.	3.879	98.	9.870		

REMARKS:



GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
159	OP AMP	BIPOLAR	1-32	1090

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	G159R		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	2.5MEV EL	4	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	75K		250K		750K		2.5MEG	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVDS MV	2.44		2.3	3979	1.3	1.245	1.1	1.704
DIOS NA	87.6		26.	17.86	64.	92.51	35.	29.72
DIB NA	346.		430.	119.7	760.	573.9	700.	186.6
+GAIN DB	26.5		96.	5.890		FAIL		1050.
-GAIN DB	102.		96.	1.618	90.	4.499	88.	1.250

FAIL  
 FAIL  
 FAIL  
 FAIL

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1596	BALANCED MOD-DEM0D	BIPOLAR	1034	5360

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MOTOROLA	MC1596		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7747L	CO-60	5	PINS: 14@-8V; 1,4@GND; 5 TO GND VIA 6.8K; 8 TO 10*

CUM. DOSE (RADS): 0

PARAMETERS	100K		300K		500K	
	MEAN	SD	MEAN	SD	MEAN	SD
IB(C)	6.594	1.427	9.624	1.147	13.80	1.107
I05(C)	-0.36	0.339	-0.36	0.305	-0.21	0.316
IB(S)	6.88	1.454	9.744	1.351	13.86	1.081
I05(S)	0.198	0.476	0.244	0.502	0.242	0.529
I05(O)	-13.0	14.26	-12.9	14.55	-12.5	14.13

16.16 1.201  
 -0.22 0.237  
 16.42 1.119  
 0.244 0.570  
 -12.7 13.85

REMARKS: \*; +12V VIA 1K TO 12 AND 6, THEN VIA 1K TO GND.

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\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
16      OP AMP      BIPOLAR      1-40      290

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
PRECISION MONOLITHIC      OP16      -----  
JPL

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
7926      2.5MEV EL      3      UNK.

\*\*\*\*\*  
CUM. DOSE (RADS):      0      30K      75K      150K      500K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
DVDS MV      .16      .1562      .198      .2508      .204      .3251      .258      .3249  
DIOS NA      .010      .1146      .2      .2690      .55      .4450      .68      .5958  
DIB NA      .22      .2844      .9      .5350      1.8      .7784      3.6      1.758  
+GAIN DB      104.      102.1      3.497      103.4      3.738      102.6      7.182      102.6      3.917  
-GAIN DB      99.3      105.2      2.511      106.6      2.255      103.6      3.806      101.7      1.884

\*\*\*\*\*  
REMARKS:  
\*\*\*\*\*

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\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
161      HI-SPEED COMPARTOR      TTL      805-11      550

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
NSC      LM161      -----  
TI

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
8009      CO-60      4      UNK.

\*\*\*\*\*  
CUM. DOSE (RADS):      0      12.5K      25K      50K      100K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
VDS      MV      1.025      .4030      1.050      .4061      1.050      .4061      1.025      .4113      1.075      .4071  
IB+      UA      2.825      .8730      3.175      1.009      3.575      .9826      4.125      1.053      5.100      1.160  
-IOS      UA      1.600      .2830      1.950      .3110      1.800      .2830      1.925      .2874      2.225      .2987

\*\*\*\*\*  
REMARKS:  
\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
161	VOLT COMPARATOR	BIPOLAR	24-27	1250

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM161	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
7846	CO-60	5	V+=15V, V--=15V, VCC=5V

PARAMETERS	0		30K		100K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D THRES/V+MV	2.480	4.575	-10.7	3.472	-16.7	1.105		
D THRES/V-MV	1.632	5.066	-1.74	6.390	2.414	7.688		
D IIB + UA	2.410	0.854	5.432	1.826	7.256	2.231		
D IIB - UA	1.680	0.865	3.208	1.489	4.388	1.769		

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
161	HI-SPEED COMPARATOR	BIPOLAR	1038	5400

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM1614		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7609	CO-60	5	V+=+12V; V--=12V.

PARAMETERS	0		100K		300K		500K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VDS	0.854	0.579	0.793	0.514	0.807	0.494	0.764	0.492
VOL	0.264	0.007	0.268	0.008	0.273	0.008	0.274	0.007
TPDLH	24.00	2.667	25.00	2.261	25.50	3.206	25.00	2.828

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1723	VOLT REG	BIPOLAR	41	100

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MOTOROLA	MC1723G		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
7619	CO-60	5	UNK.

CUM. DOSE (RADS):		0		13K		52K		170K		360K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ISCO	MA	1.11		1.11		1.06		1.04		1.03	
VR(L1)	%	0.03		0.01		0.03		0.02		0.02	
VR(L2)	%	0.06		0.06		0.07		0.09		0.11	
VR(LOAD4)	%	0.02		0.02		0.02		0.05		0.09	
VR(LOAD5)	%	0.13		0.29		0.41		0.64		0.01	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1741	OP AMP	BIPOLAR	42	90

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MOTOROLA	MC1741CG		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	V+=15V, V-=-15V, RFB=100K, VIN+/- TO GND VIA 10K

CUM. DOSE (RADS):		0		3.1K		2.1K		82K		300K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIO	MV	1.90		2.00		2.50		2.20		2.30	
IIO	NA	13.80		14.60		13.40		33.50		84.60	
IB	NA	147.0		165.0		204.0		277.0		405.0	
IQ	MA	1.600		1.600		1.600		1.600		1.500	
GBW	KHZ	1881.		2008.		1923.		1778.		1608.	

F-MARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER: 1802  
 FUNCTION: MICROPROCESSOR  
 TECHNOLOGY: CMOS  
 REF. NO.: 4-1  
 RECORD: 1500

\*\*\*\*\*  
 MANUFACTURER: HUGHES  
 PART NUMBER: HMMP1802CD  
 SPECIFICATION: MOTOROLA  
 DATA SOURCE: MOTOROLA

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 8030 CO-60 2 5V

\*\*\*\*\*  
 CUM. DOSE (RADS): 0 5K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 VTN V 1.844 .1495 1.176 .2341  
 VTP V 1.480 .1018 1.785 .1706  
 IDD UA 0.005 .0071 10.65 15.06  
 DVTN V .6922 .1162  
 DVTP37 V .4179 .0350

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 1802  
 FUNCTION: MICROPROCESSOR  
 TECHNOLOGY: CMOS  
 REF. NO.: 4  
 RECORD: 1510

\*\*\*\*\*  
 MANUFACTURER: HUGHES  
 PART NUMBER: HMMP1802CD  
 SPECIFICATION: MOTOROLA  
 DATA SOURCE: MOTOROLA

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 7940 CO-60 2 5V

\*\*\*\*\*  
 CUM. DOSE (RADS): 0 5K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 VTN V 1.942 .0574 .5788 .1296  
 VTP V 1.723 .1433 2.050 .1231  
 DVTN V 1.318 .1794  
 DVTP37 V .3246 .0502  
 IDD UA 0.010 .0141 0.130 .1697

REMARKS:

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\*\*\*\*\*  
GENERIC PART NUMBER: 1802  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER 1802  
-----  
1802  
-----  
FUNCTION MICROPROCESSOR  
-----  
TECHNOLOGY CMOS  
-----  
REF. NO. RECORD 801 1550  
-----

MANUFACTURER  
-----  
HAC  
-----  
PART NUMBER HCMP1802D2  
-----  
SPECIFICATION COMMERCIAL  
-----  
DATA SOURCE GSFC PPM  
-----

LDC RAD. TYPE PART QTY. BIAS  
-----  
7808D CO-60 4 +5V. +10V  
-----

CUM. DOSE (RADS): 0 4K 6K  
-----  
PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
-----  
FUNCTION 5V 4PASS 1FAIL 4FAIL  
FUNCTION 10V 4PASS 4PASS 4FAIL  
-----

REMARKS:  
\*\*\*\*\*

GENERIC PART NUMBER 1802  
-----  
1802  
-----  
FUNCTION MICROPROCESSOR  
-----  
TECHNOLOGY CMOS  
-----  
REF. NO. RECORD 801 1560  
-----

MANUFACTURER  
-----  
RCA  
-----  
PART NUMBER CDP1802D  
-----  
SPECIFICATION COMMERCIAL  
-----  
DATA SOURCE GSFC PPM  
-----

LDC RAD. TYPE PART QTY. BIAS  
-----  
810 CO-60 6 +5V. +10V  
-----

CUM. DOSE (RADS): 0 4K 6K  
-----  
PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
-----  
FUNCTION 5V 6PASS 2FAIL 6PASS  
FUNCTION 10V 6PASS 5FAIL 5FAIL  
-----

REMARKS:  
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\*\*\*\*\*  
GENERIC PART NUMBER: 1802  
\*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1821	1024X1-BIT RAM	CMOS-SOS	94	1640

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CDP1821D		JFL

LDC	RAD. TYPE	PART QTY.	BIAS
SD832	CO-60 *	4	VDD=10V, PINS 1-6,9-16 @ VDD, PIN 7 OPEN, VSS=GND.

CUM. DOSE (RADS):	0	16K	20K	25K	30K
PARAMETERS	MEAN SD	MEAN SD	MEAN SD	MEAN SD	MEAN SD
FUNCTIONALITY	3FAIL 4PASS	3FAIL 4PASS	4FAIL 4PASS	4FAIL 3FAIL	4FAIL 4FAIL
@ VDD = 5V					
@ VDD = 10V					

\*\*

REMARKS: \*\* PARAMETERS CONTINUED ON RECORD 1641. \* DOSE RATE = 52 RAD(SI)/S.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1821	1024X1-BIT RAM	CMOS-SOS	94	1641

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CDP1821D		

CUM. DOSE (RADS):	0	6K	10K	16K	20K
PARAMETERS	MEAN SD	MEAN SD	MEAN SD	MEAN SD	MEAN SD
VIL(5)	2.425 0.05	1.95 .058	1.675 .096	0.35 0.7	0.00 0.00
VIH(5)	2.50 0.00	2.025 0.05	1.775 .096	.375 0.75	0.00 0.00
VIL-CS(5)*	2.4	1.8	1.5	+0.R.	+0.R.
VIL-MWR(5)*	2.4	1.7	1.3	+0.R.	+0.R.
VIL-DI(5)*	2.8	2.1	1.8	+0.R.	+0.R.
VIH-CS(5)*	2.3	1.7	1.5	+0.R.	+0.R.

REMARKS: CONT. FROM REC. 1640. (5) MEANS VDD=5V. \* MEAN=WORST-CASE (NOT AVG.)

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\*\*\*\*\*  
GENERIC PART NUMBER: 1821  
\*\*\*\*\*  
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\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1821	1024X1 BIT RAM	CMOS-SOS	94	1642

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CDP1821D		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0

PARAMETERS	4K		8K		10K		16K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIH-MWR(5)* V	2.3	1.9	1.5	1.3	1.3	1.3	+0.R.	
VIH-DI(5)* V	2.6	2.3	2.0	1.8	1.8	1.8	+0.R.	
TAA(5)* US	.26	.26	.26	.26	.26	.26	+0.R.	
TAC(5)* US	.17	.17	.17	.17	.17	.17	+0.R.	
TW(5)* US	.05	.06	.07	.09	.09	.09	+0.R.	
TDS(5)* US	.01	.02	.03	.04	.04	.04	+0.R.	

--PARAMETERS CONT. ON REC. 1643.  
REMARKS: CONT. FROM REC. 1641. \* MEAN = WORST-CASE VALUE (NOT AVERAGE).

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1821	1024X1-BIT RAM	CMOS-SOS	94	1643

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CDP1821D		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0

PARAMETERS	4K		8K		10K		12K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TDH(5)* US	.06	.06	.08	.08	.08	.08	+0.R.	
TCS(5)* US	.04	.05	.07	.08	.08	.08	+0.R.	
TAS(5)* US	.04	.04	.05	.05	.05	.05	+0.R.	

--PARAMETERS CONT. ON REC. 1644.

REMARKS: CONT. FROM REC. 1642. \* MEAN = WORST-CASE VALUE (NOT AVERAGE).

\*\*\*\*\*  
GENERIC PART NUMBER: 1821  
\*\*\*\*\*  
PAGE A-132  
\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1821	1024X1-BIT RAM	CMOS-SOS	94	1644

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CDP1821D		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0

PARAMETERS	10K		20K		25K		30K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IDP(5)* MA	-3		+38		+30		+3	
IDN(5)* MA	+8		+7		-10		0	
IOZL(5)* UA	0		-3		-5		-13	
IOZH(5)* UA	0		+100		+120		+140	
IDDL(5)* MA	+1		+7		+16		+91	
IDDH(5)* MA	0		+12		+11		+18	

--PARAMETERS CONT. ON REC. 1645.  
 REMARKS: CONT. FROM REC. 1643. \* MEAN = WORST-CASE VALUE (NOT AVERAGE).

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1821	1024X1-BIT RAM	CMOS-SOS	94	1645

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CDP1821D		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0

PARAMETERS	10K		20K		25K		30K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIL(10) V	4.3	0.0	3.58	0.10	2.80	0.08	0.65	1.30
VIH(10) NO DATA								
VIL-CS(10)* V	4.2		3.2		2.5		3FAIL	
VIL-MWR(10)* V	4.0		2.8		1.6		3FAIL	
VIL-DI(10)* V	5.0		4.1		3.3		3FAIL	
VIH-CS(10)* V	4.1		3.2		2.5		3FAIL	

--PARAMETERS CONT. ON REC. 1646.  
 REMARKS: CONT. FROM REC. 1644. (10) MEANS VDD=10V. \* MEAN=WORST-CASE (NOT AVG)

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1821	1024X1-BIT RAM	CMOS-SOS	94	1646

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CDP1821D		

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS): 0

PARAMETERS	10K		20K		25K		30K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>IH</sub> -MWR(10)*V	4.0		2.9		2.5		3FAIL	4FAIL
V <sub>IH</sub> -DI(10)*V	5.0		4.1		3.4		3FAIL	4FAIL
TAA(10)*US	.20		.20		1FAIL		3FAIL	4FAIL
TAC(10)*US	.17		.17		.18		3FAIL	3FAIL
TW(10)*US	.04		.05		.06		.08	3FAIL
TDS(10)*US	.00		.00		.01		.02	4FAIL

--PARAMETERS CONT. ON REC. 1647.  
 REMARKS: CONT. FROM REC. 1645. (10) MEANS VDD=10V. \* MEAN=WORST-CASE (NOT AVG)

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1821	1024X1-BIT RAM	CMOS-SOS	94	1647

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CDP1821D		

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS): 0

PARAMETERS	10K		20K		25K		30K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TDH(10)*US	.06		.06		.06		4FAIL	
TCS(10)*US	.03		.05		.08		1FAIL	
TAS(10)*US	.02		.03		.04		4FAIL	
TDP(10)*MA	-5		0		5		85	
IDN(10)*MA	16		12		7		2	
IDZL(10)*UA	0		-5		-9		-25	

--PARAMETERS CONT. ON REC. 1648.  
 REMARKS: CONT. FROM RECORD 1646. \* MEAN = WORST-CASE VALUE (NOT AVERAGE).

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\*\*\*\*\*  
 GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
 -----  
 1821      1024X1-BIT RAM      CMOS-SOS      94      1648  
 -----

\*\*\*\*\*  
 MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
 -----  
 RCA      CDP1821D  
 -----

\*\*\*\*\*  
 LDC    RAD. TYPE    PART QTY.    BIAS  
 -----

CUM. DOSE(RADS):      0      10K      20K      25K      30K  
 -----  
 PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
 -----  
 IOZH(10)\*    UA      0      50      175      200      290  
 IDD(10)\*    MA      2      3      12      18      105  
 IDDH(10)\*    MA      0      4      68      105      100  
 -----

\*\*\*\*\*  
 END OF  
 PARAMETERS  
 REMARKS: CONT. FROM REC. 1647. (10) MEANS VDD=10V. \* MEAN =WORST-CASE VALUE.  
 \*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
 -----  
 1824      RAM      CMOS      4-3      1480  
 -----

\*\*\*\*\*  
 MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
 -----  
 HUGHES      HMMP1824D      MOTOROLA  
 -----

\*\*\*\*\*  
 LDC    RAD. TYPE    PART QTY.    BIAS  
 -----  
 8031    CO-60      4      V+=13.5V  
 -----

CUM. DOSE(RADS):      0      3K      5K      5K \*\*  
 -----  
 PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
 -----  
 VTN(AVG.)    V      1.963    .0510    1.692    .0786    1.687    .0381    1.526    .0398    1.703    .0088  
 IDD      MA      .3147    .5547    .3405    .6054    .4444    .6708    .4933    .7064    .0001  
 DVTN      V      .2610    .0359      .4032    .0218      .3213  
 -----  
 MAX TRI-STATE      5      0      5      0      2456    1320  
 LEAKAGE NA  
 AVG TRI-STATE      5      0      5      0      2230    1193  
 LEAKAGE NA  
 REMARKS: \*AFTER 7-DAY ANNEAL. \*\*DATA OF 1 DEVICE, IRRAD. AFTER 15-DAY ANNEAL.  
 \*\*\*\*\*

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\*\*\*\*\*  
GENERIC PART NUMBER 1832  
\*\*\*\*\*  
FUNCTION ROM  
\*\*\*\*\*  
TECHNOLOGY CMOS  
\*\*\*\*\*  
REF. NO. RECORD 4-5 1460  
\*\*\*\*\*  
MANUFACTURER HUGHES  
\*\*\*\*\*  
PART NUMBER HMMP1832CD  
\*\*\*\*\*  
SPECIFICATION DATA SOURCE MOTOROLA  
\*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
8036 CO-60 4 V+=5V

CUM. DOSE (RADS): 0 50K  
PARAMETERS MEAN SD MEAN SD  
VTN V 1.912 .1339 .5234 .0727  
IDD V 0.118 .1406 .1775 0.205  
DVTN V 0.0 0.0 1.391 .1584

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER 1832  
\*\*\*\*\*  
FUNCTION ROM  
\*\*\*\*\*  
TECHNOLOGY CMOS  
\*\*\*\*\*  
REF. NO. RECORD 4-4 1470  
\*\*\*\*\*  
MANUFACTURER HUGHES  
\*\*\*\*\*  
PART NUMBER HMMP1832CD  
\*\*\*\*\*  
SPECIFICATION DATA SOURCE MOTOROLA  
\*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
8035 CO-60 4 5V

CUM. DOSE (RADS): 0 5K  
PARAMETERS MEAN SD MEAN SD  
VTN V 1.799 .0300 .5383 .0468  
IDD UA 0 0 0 0  
DVTN V 0 0 1.261 .0778

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 1832  
 \*\*\*\*\*  
 FUNCTION: 512X8 ROM  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 803 1530  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: RCA  
 PART NUMBER: CDPR512D  
 SPECIFICATION: COMMERCIAL  
 DATA SOURCE: GSFC PPM  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 7719 CO-60 5 +5V,+10V  
 \*\*\*\*\*

CUM. DOSE (RADS): 0  
 3K 10K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 FUNCTION 5V 5PASS 3FAIL 5FAIL  
 FUNCTION 10V 5PASS 5FAIL 5FAIL  
 \*\*\*\*\*

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 1832  
 \*\*\*\*\*  
 FUNCTION: ROM  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 5 1720  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: HUGHES  
 PART NUMBER: HMMP1832CD-015  
 SPECIFICATION: MOTOROLA  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 8047B CO-60 3 V+=5V, PINS: 1-11,13-17,20,21,23 TO 5V VIA 47K  
 \*\*\*\*\*

CUM. DOSE (RADS): 0  
 3K 3K\* 5K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 VTN V 1.785 .0092 .3403 .0100 .9077 .0100 .2433 .0082  
 IDD UA .0133 .0231 .0133 .0231 .0133 .0231  
 DVTN V .9443 .0167 .8766 .0173 1.541 .0144  
 \*\*\*\*\*

REMARKS: \*PARAMETERS REMEASURED 3 DAYS AFTER FIRST MEASUREMENT AT 3KRADS.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1840	16 CHANNEL MUX.	CMOS	24-46	1210

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HI 1840	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
7841	CO-60	4	V+=15V, V--=-15V, IN(1-8)=AO=A1=VREF=5V, REST GND

CUM. DOSE(RADS): 0 10K 20K 30K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D ICC UA	746.7	88.29	3600.	473.5	5000.	657.5		
D ICC(-15V)UA	670.4	67.70	3100.	396.4	4300.	539.2		
D IS/O(P19)NA	0.417	0.787	2.873	3.700	4.140	6.475		
D IS/O(P22)NA	4700.	5500.	119E3	10700	161E3	07600		
D ON/R(P21)OH	8.175	0.330	18.30	1.534	28.07	3.818		
D ON/R(P22)OH	2.975	0.512	5.350	0.465	6.225	2.246		

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
1840	ANALOG MULTIPLEXER	CMOS	1003	5020

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HI1-1840-2		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7945	CO-60	10	ALL INPUTS AT 5V, FUNCTIONAL TEST CIRCUIT, VDD=15V

CUM. DOSE(RADS): 0 10K 30K 60K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VAH V	3.811	0.126	3.738	0.119	4.170	0.196	4.977	0.313
RON,1 OHMS	467.1	17.65	492.7	17.14	540.8	19.07	624.8	23.33
RON,16 OHMS	496.1	28.60	526.6	31.00	564.9	28.16	611.3	20.86
IDOFF1 NA	0.018	0.067	0.118	0.071	0.380	0.106	0.793	0.176
IDOFF16 NA	0.002	0.079	0.101	0.095	0.365	0.128	0.710	0.169

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
198	SAMPLE & HOLD	BIPOLAR	22	1850

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NS	LF188A	1880 NSC LINEAR CAT	MAGNAVOX

LDC	RAD.	TYPE	PART QTY.	BIAS
UNK.	C0-60	12	V <sub>B</sub> =+15VDC; V <sub>-</sub> = -15VDC; P1N7=GND	

CUM. DOSE (RADS) :	0			5K		
	MEAN	SD		MEAN	SD	
PARAMETERS						
DIIN+ PIN3 NA				- .665	-.224	
DV05 MV				-.034	2.194	
D-ICC MA				0.059	0.024	
D+ICC MA				0.062	0.021	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
200	DUAL SPST SWITCH	CMOS	25-10	2040

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HI2-200-2		AEROJET

LDC	RAD.	TYPE	PART QTY.	BIAS
7733M	C0-60	5	UNK.	

CUM. DOSE (RADS):	0		2.5K		10K		40K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS								
FUNCTIONALITY	5PASS		5PASS		5PASS		5FAIL	
IS(OFF) **	5PASS		5PASS		5PASS		5PASS	
ID(OFF)	5PASS		5PASS		5PASS		5PASS	
ID(ON)	5PASS		4PASS		5FAIL		5PASS	
I+	5PASS		5PASS		3FAIL		5PASS	
I-	5PASS		5PASS		3FAIL		5PASS	
IDD DYNAMIC	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*\*VI, THL, TLH PASS ALL DOSES.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
201	ANALOG SWITCH	CMOS	101-1	1950

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HI-201		LITTON

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	V+=5V

PARAMETERS	0		4K		8K	
	MEAN	SD	MEAN	SD	MEAN	SD
LEAK/IN+10 PA	15.00	19.00	38.00	39.00	23.00	24.00
LEAK/O +10 PA	18.00	20.00	34.00	35.00	16.00	15.00
LEAK/IN-10 PA	147.0	113.0	127.0	109.0	23.00	19.00
LEAK/O -10 PA	116.0	92.00	141.0	119.0	17.00	14.00

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
201	QUAD SPST SWITCH	CMOS	25-11	2030

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HI1-201-2		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7730V	CO-60	5	UNK.

PARAMETERS	0		2.5K		10K		40K		130K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
FUNCTIONALITY	5PASS		5PASS		5PASS		4FAIL		4FAIL	
IDD(DYNAMIC)*	5PASS		5PASS		5PASS		5PASS		5PASS	
IS(OFF)	5PASS		5PASS		5FAIL		5PASS		**	
ID(OFF)	5PASS		5PASS		5FAIL		5FAIL		**	
ID(ON)	5PASS		5PASS		5FAIL		5FAIL		**	
I+	5PASS		5PASS		5PASS		4PASS		4PASS	
I-	5PASS		5PASS		5PASS		4PASS		4PASS	

REMARKS: \*VI, THL, TLH PASS ALL DOSES \*\*1 FAILED, 4 IMPROVED (OF 4, SOME PASSED).

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GENERIC PART NUMBER    FUNCTION    TECHNOLOGY    REF. NO.    RECORD  
-----  
2102    RAM    NMOS    701-4    2010

MANUFACTURER    PART NUMBER    SPECIFICATION    DATA SOURCE  
-----  
NATIONAL    MM2102-2MD       AFWL-TR-79-118

LDC    RAD. TYPE    PART QTY.    BIAS  
-----  
UNK.    CO-60    10    V+=5V, 5 DEVICES HAD ALL INPUTS TO GND. 5 AT V+

CUM. DOSE(RADS):    0    5K  
-----  
PARAMETERS    MEAN    SD    MEAN    SD    MEAN    SD    MEAN    SD  
-----  
ICC1    MA    27.00       26.80  
IDL    MA    1.380       1.380  
IOH    MA    1.360       1.430  
TAC    NS    354.0       350.0

REMARKS:

GENERIC PART NUMBER    FUNCTION    TECHNOLOGY    REF. NO.    RECORD  
-----  
215    PHASE-LOCKED LOOP    BIPOLAR    1-147    1880

MANUFACTURER    PART NUMBER    SPECIFICATION    DATA SOURCE  
-----  
EXAR INTEGRATED SYST    XR215       JPL

LDC    RAD. TYPE    PART QTY.    BIAS  
-----  
7816    2.5MEV EL    3    VCC=5V, VEE=-5V.

CUM. DOSE(RADS):    0    30K    75K    150K    600K  
-----  
PARAMETERS    MEAN    SD    MEAN    SD    MEAN    SD    MEAN    SD  
-----  
ICC(MAX) \* MA    12.16       12.35       12.11       11.80  
IEE(MAX) \* MA    12.35       12.63       12.45       11.88  
CAPTURE RANGE    383       384       385       382  
CAPTURE RANGE    415       413       412       411  
HIGH\*(MAX)KHZ    415       413       412       411  
---PARAMETERS CONT. ON REC. 1881.  
REMARKS: \* MEAN = WORST-CASE VALUE (NOT AVERAGE).

\*\*\*\*\*  
 GENERIC PART NUMBER: 215  
 FUNCTION: PHASE-LOCKED LOOP  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1-147 1881

\*\*\*\*\*  
 MANUFACTURER: PART NUMBER: SPECIFICATION: DATA SOURCE:  
 EXAR INTEGRATED SYST XR215

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE(RADS): 0 30K 75K 150K 600K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 LOCK-IN RANGE 353 354 355 355 356  
 LOW\*(MIN)KHZ  
 LOCK-IN RANGE 455 449 446 444 439  
 HIGH\*(MAX)KHZ  
 FREE RUN FREQ 4.84 4.80 4.79 4.76  
 \*(MEAN) MHZ  
 ---PARAMETERS CONT. ON REC. 1882.  
 REMARKS: CONTINUED FROM RECORD 1880. \* MEAN=WORST-CASE (NOT AVG.).

\*\*\*\*\*  
 GENERIC PART NUMBER: 215  
 FUNCTION: PHASE-LOCKED LOOP  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1-147 1882

\*\*\*\*\*  
 MANUFACTURER: PART NUMBER: SPECIFICATION: DATA SOURCE:  
 EXAR INTEGRATED SYST XR215

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE(RADS): 0 30K 75K 150K 600K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 X-JITTER (MAX) NS 183 178 184 159 169  
 Q2-JITTER (MAX) NS 310 290 250 267 258  
 IN-OUT JITTER (MAX) NS 476 522 534 645 513

REMARKS: CONTINUED FROM RECORD 1881. END OF PARAMETERS.

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REMARKS:

REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER: 24250  
 FUNCTION: OP-AMP  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 24-3 1990

\*\*\*\*\*  
 MANUFACTURER: NATIONAL  
 PART NUMBER: LH24250  
 SPECIFICATION: COMMERCIAL  
 DATA SOURCE: ROCKWELL

\*\*\*\*\*  
 LDC RAD. TYPE: CO-60  
 PART QTY.: 5  
 BIAS: V+=15V, V-=-15V, NONINV-INPUT=5V, INV-INPUT=OUTPUT

\*\*\*\*\*  
 CUM. DOSE (RADS): 0  
 PARAMETERS: MEAN SD 10K 30K 50K 100K  
 D VDS MV 0.855 0.516 2.060 0.806 5.505 1.110 5.833 2.800  
 D IOS NA 2.084 1.056 4.719 .200 8.429 6.334 31.09 30.03  
 D IIB NA 31.30 3.818 79.55 10.25 139.0 18.53 186.1 42.67

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 244  
 FUNCTION: 256X4 RAM  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 1-143 1900

\*\*\*\*\*  
 MANUFACTURER: SANDIA  
 PART NUMBER: TCC244  
 SPECIFICATION: JPL

\*\*\*\*\*  
 LDC RAD. TYPE: 1.25MEVGAM  
 PART QTY.: 12  
 BIAS: VDD=10V.

\*\*\*\*\*  
 CUM. DOSE (RADS): 0  
 PARAMETERS: MEAN SD 30K 75K 150K 300K\*\*\*  
 ISS(MAX)\*\* NA 100 1500 18000 54000  
 IDN(MAX)\*\* MA 5.8 5.5 5.4 4.8  
 IDP(MAX)\*\* MA 3.2 3.0 2.9 2.6  
 VDD(MIN)\*\* V 3.8 4.9 8.4 10.1  
 TAA(MAX)\*\* NS 150 175 210 260  
 TAC(MAX)\*\* NS 105 110 140 185  
 --PARAMETERS MEAS. @VDD= 10V.  
 REMARKS: \*8024,8051,8106. \*\* MEAN=WORST-CASE (NOT AVG.). \*\*\*CONT. ON REC. 1901

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\*\*\*\*\*  
 GENERIC PART NUMBER: 244  
 FUNCTION: 256X4 RAM  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 1-143 1901  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: SANDIA  
 PART NUMBER: TCC244  
 SPECIFICATION: DATA SOURCE: 1901  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS) :		0		600K							
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
ISS(MAX) ** NA	100				30000						
IDN(MAX) ** MA	5.8				4.2						
IDP(MAX) ** MA	3.2				2.2						
VDD(MIN) ** V	3.8				11.8						
TAA(MAX) ** NS	150				370						
TAC(MAX) ** NS	105				270						

REMARKS: CONTINUATION OF DOSES FROM RECORD 1900.

\*\*\*\*\*  
 GENERIC PART NUMBER: 245  
 FUNCTION: TRIPLE LINE XMTR  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 25-13 2080  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: HARRIS  
 PART NUMBER: HD245-2  
 SPECIFICATION: AEROJET  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS):		0		2.5K		10K		40K		130K *	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
IOUT-ON	5PASS		5PASS		5PASS		5PASS		5PASS		
IOUT-OFF	5PASS		5PASS		5PASS		5PASS		5PASS		
ICER	5PASS		5PASS		5PASS		5PASS		5PASS		
IIL	5PASS		5PASS		5PASS		5PASS		5PASS		
ICC	5PASS		5PASS		5PASS		5PASS		5PASS		

REMARKS: \*ALL PARAMETERS PASSED AT A FINAL CUMULATIVE DOSE OF 250K RADS.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
248	TRIPLE LINE RCVR	BIPOLAR	25-14	2090

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HD248-2		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
* (3)	CO-60	5	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	2.5K		10K		40K		130K **	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOH	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
VDS	5PASS		5PASS		5PASS		5PASS	
ICC	5PASS		5PASS		5PASS		5PASS	
IEE	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*7408, EHO88, 7328. \*\*ALL PASSED AT FINAL CUM DOSE OF 250K RAD.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
25LS22	8-BIT SHIFT REGISTR	BIPOLAR	1054	5560

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	AM25LS22		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
8024D	CO-60 + N*	10	VCC=+5V.

CUM. DOSE (RADS): 0

PARAMETERS	*N+200K		*N+200K		
	MEAN	SD	MEAN	SD	
VOL (DY7)	MV	345.4	14.53	343.9	15.26
VOL (DY5)	MV	341.0	14.70	341.2	15.79
VOL (DY3)	MV	340.3	14.91	336.4	15.43
VOL (DY1)	MV	331.0	14.79	331.0	15.77
VOL (DY6)	MV	340.1	32.31	346.7	15.59
VOL (DY4)	MV	340.7	15.23	342.5	15.59

CONT. REC. 5561

REMARKS: DYO, 1, 2, 3, 4, 5, 6, 7 = PINS 13, 7, 14, 6, 15, 5, 16, 4, RESPECTIVELY. QO=PIN 12.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
25LS22	8-BIT SHIFT REGISTR	BIPOLAR	1054	5561

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA	SOURCE
AMD	AM25LS22			

LDC	RAD. TYPE	PART QTY.	BIAS
	CO-60 + N*		

CUM. DOSE (RADS): 0 \*N+200K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOL(DY2)	MV	337.7	15.20	337.9	16.53			
VOL(DYO)	MV	335.5	13.73	342.4	13.67			
VOL(OO)	MV	354.2	14.76	354.4	16.35			

REMARKS: CONTINUATION OF RECORD 5560. \*NEUTRON RAD. = 6.6E11 N/SQCM.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
25LS22	8-BIT SER/PAR REGIS	TTL	1073	5750

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA	SOURCE
AMD	AM25LS22			TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7744	CO-60 + N*	5	VCC=+5V.

CUM. DOSE (RADS): 0 \*N+100K \*N+300K \*N+500K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
II	NA	121.8	11.48	112.2	12.93	112.4	13.05	101.6
IIL	NA	.7960	.0114	.7940	.0089	.7780	.0084	.7760
IIH	NA	97.0	13.69	85.8	8.701	86.2	9.365	82.2

\*\*

REMARKS: \*NEUTRON RAD. = 6.6E11 N/SQCM. \*\*CONTINUED ON RECORD 5751.

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TECHNOLOGY	REF. NO.	RECORD
ITL	1073	5751

SPECIFICATION	DATA SOURCE
---------------	-------------

	NH+300K		NH+500K	
	MEAN	SD	MEAN	SD
1	1.12	7.461	297.6	7.452
2	0.54	5.861	5.928	6.071
3	938	8.994	9.338	8.733
4	5.6	373.4	627.8	367.2
5	9349	0.085	2.951	0.110

VE. OVER 9 PINS. \*\*AVE. OVER 8 PINS

TECHNOLOGY	REF. NO.	RECORD
BIPOLAR	43	1910

SPECIFICATION	DATA SOURCE
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	52K		170K		360K	
	IN	SD	MEAN	SD	MEAN	SD
1	1.0		1.0		1.2	
2	3.9		16.1		22.5	
3	3.0		334.0		394.0	
4	60		4.60		4.50	
5	31.		1687.		1696.	

REMARKS:

GENERIC PART NUMBER: 2510

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
2520	OP AMP	BIPOLAR	44	1920

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HA2520-2		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	8	V+=+5V, V=-5V

CUM. DOSE(RADS) :										
	0		10K		30K		100K		300K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D VDS MV	-	-	- 131	0.170	- 256	0.360	0.499	0.923	- 1.33	2.55
I D IOS NA	-	-	- 870	1.360	- 2.63	3.10	- 4.13	6.90	- 9.01	16.30
B D IB UA	-	-	0.022	3.62	0.064	8.19	0.150	0.013	0.298	0.022
A V DB	-	-	- 163	.3020	- .750	0.316	- 1.74	0.570	- 3.01	0.976

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
2520	OP-AMP	BIPOLAR	24-1	2000

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARIS	HA250	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
8014	C0-60	8	V+=15V, V-=-15V, NONINV-INPUT=5V, INV-INPUT=OUTPUT

CUM. DOSE (RADS)		0			30K			100K			300K		
		MEAN	SD		MEAN	SD		MEAN	SD		MEAN	SD	
PARAMETERS													
V													
D	VDS	M			- .997	.446		+1.43	1.47		-11.8	23.3	
D	IOS	NA			08.70	15.57		0.622	15.60		-44.7	66.51	
D	ITB	NA			117.6	48.29		281.4	115.7		723.5	374.9	

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 2520

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
2520	OP AMP	BIPOLAR	25-15	2060

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HA2-2520-2		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7706E	CO-60	4	UNK.

CUM. DOSE (RADS): 0 18.6K 102.3K 418.5K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIO	4PASS		4PASS		1FAIL		1F *	
IB	4PASS		4PASS		3FAIL		4F **	
IIO	4PASS		4PASS		1FAIL		2F***	
IQ	4PASS		4PASS		5PASS		5PASS	
GBW	4PASS		4PASS		5PASS		5PASS	

REMARKS: \*MAX EXCEEDANCE=22MV. \*\*MEAN=471NA (SPEC MAX=200NA). \*\*\*MAX EXCDNC=251NA

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
2520	OP AMP	BIPOLAR	1002	5010

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HA9-2520		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7750	CO-60	5	V+=15V, V-=-15V, VIN=1V(PP) 1KHZ, RIN=10K, RF=100K

CUM. DOSE (RADS): 0 300K 500K 700K 1MEG

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOL	1HZ	DB	83.24	0.38	70.91	0.47	70.45	0.58	70.62	0.57
VOS	MV		0.420	4.472	0.444	4.506	0.421	4.446	0.256	4.421
IOS	NA		0.600	1.283	17.64	11.32	19.50	23.17	23.40	27.50
IB	NA		17.47	1.79	219.2	19.58	271.6	17.29	278.6	13.10
AVOL	1KHZ	DB	82.76	0.25	71.64	0.56	70.91	0.64	71.17	0.65
AVOL	5KHZ	DB	69.29	0.10	67.13	0.23	66.84	0.26	66.93	0.27

REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER: 26LS31  
 \*\*\*\*\*  
 FUNCTION: QUAD DIFF. DRIVER  
 TECHNOLOGY: TTL  
 REF. NO. RECORD: 805-15 590

\*\*\*\*\*  
 MANUFACTURER: AMD  
 PART NUMBER: AN26LS31  
 SPECIFICATION: TI  
 DATA SOURCE: TI

LDC RAD. TYPE PART QTY. BIAS  
 8110 CO-60 4 UNK.

CUM. DOSE (RADS): 0 12.5K 50K 100K 200K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 VDH V 4.019 .0403 4.025 .0599 4.040 .0677 4.075 .0908 4.100 .0570  
 VOL V .1 0.0 .1 0.0 .1 0.0 .1 0.0 .1 0.0

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 2600  
 \*\*\*\*\*  
 FUNCTION: OP AMP  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 45 1930

\*\*\*\*\*  
 MANUFACTURER: HARRIS  
 PART NUMBER: HA2600  
 SPECIFICATION: IRT CORP  
 DATA SOURCE: IRT CORP

LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO-60 4 UNK.

CUM. DOSE (RADS): 0 100K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 VDS MV -.283 .3510 .0100 1.111  
 IB(+NV) NA -.588 1.105 60.67 26.86  
 IB(NINV) NA 1.003 .5989 .5150 .5809  
 IOS NA 1.590 1.175 -48.8 105.7  
 CMRR DB 60.00 0.0 59.93 2.444  
 GAIN DB 113.8 0.500 85.67 15.01

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
2600	OP AMP	BIPOLAR	1-34	1970

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HA2600		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	CO-60	3	UNK.

CUM. DOSE (RADS)	0		75K		150K		300K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS										
DVOS MV	.21	.1071	.37	.2152	.96	.6684	.99	.7891		
DIOS NA	33.7	13.89	37.2	49.57	15.5	40.90	17.5	44.07		
DIB NA	10.5	13.37	44.5	22.15	39.5	38.11	39.5	38.29		
+GAIN DB	107.		104.8	.3460	FAIL	FAIL	FAIL	FAIL		
-GAIN DB	104.		103.7	.6277	FAIL	FAIL	FAIL	FAIL		

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO.	RECORD
2620	QPAMP	BIPOLAR	7	2020

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HA2620-2		MOTOROLA

LDC	RAD.	TYPE	PART	QTY.	BIAS
7842	CO-60+N*		5		UNK.

CUM. DOSE(RADS):		O		90K+N*		270K+N*		1.35M+N		REMARKS	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD		
PARAMETERS											
MV	V10	.5710	.4646	2.940	1.126	5.663	1.087	9.700	1.131	NOTE:	
NA	IIIN(+)	4.680	6.044	216.4	301.1	340.0	521.2	230.0	735.4	FUNCTIONAL	
NA	IIIN(-)	3.600	10.66	122.2	163.0	266.3	422.9	447.5	852.1	FAILURE RES-	
NA	IIIO	8.520	7.004	381.0	209.8	813.8	122.8	1123.	307.6	1FAIL @270K	
K	AVDL	135.2	55.85	48.79	8.755	38.15	5.672	36.05	.4950	2FAIL @1.4M	
MA	ICC	2.780	.0837	2.590	.1597	2.588	.1652	1.715	1.063		
NS	SLEW RATE	26.21	1.490	23.07	1.571	22.93	1.648	20.85	1.909		

REMARKS: \*N=NEUTRON5=4.12 N/SCQM. VALUES @ "CUMDOSE=0" ARE POST-NEUTRON.

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-----  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO.      RECORD  
-----  
2620      OP AMP      BIPOLAR      1025      5270

-----  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
HARRIS      HA2620      TRW

LDC    RAD. TYPE    PART QTY.    BIAS  
-----  
7816    CO-60      5      V+=15V, V--=-15V, NONINV-INPUT TO GND VIA 6.8K, \*\*

CUM. DOSE (RADS):      0      10K      25K      50K      100K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOL	107.0	2.229	108.7	1.925	107.6	1.987	106.8	1.674	*	*
IB	-1.56	0.835	-1.39	0.808	-1.30	0.623	-1.76	0.573	-154.	351.1
VDS	0.276	1.190	0.275	1.165	0.283	1.161	0.293	1.158	0.883	2.266
IDS	0.050	2.413	-0.34	2.491	-0.71	3.116	-1.03	3.411	-45.7	97.82
SLEW +V/MS	33.10	1.597	32.80	2.588	32.20	1.483	31.80	1.789	*	*
SLEW -V/MS	27.80	1.789	28.20	1.096	28.20	1.096	27.20	1.304	*	*

REMARKS: \* NO DATA TAKEN. \*\* RIN=RL=10K, RF=20K, NO SIGNAL INPUT.

-----  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO.      RECORD  
-----  
27LS08      32X8 PROM      LSTTL      25-16      2050

-----  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
AMD      AM27LS08DM      AEROJET

LDC    RAD. TYPE    PART QTY.    BIAS  
-----  
7703    CO-60      5      UNK.

CUM. DOSE (RADS):      0      65K      185K      525K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS
VOL	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS
II	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS
IIH	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS
IIL	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS
ICEX	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS
ICC	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS

REMARKS: \*\*S/N 50 FAILED (PREVIOUS NEUTRONS: 5.E10N/SQCM). \*S/N 50854(PREV.FXR)

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GENERIC PART NUMBER: 2700

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REMARKS:



GENERIC PART NUMBER: 2700  
FUNCTION: OP-AMP LOW PWR  
TECHNOLOGY: BIPOLAR  
REF. NO.: 99  
RECORD: 2070

MANUFACTURER: HARRIS  
PART NUMBER: HA2700  
SPECIFICATION: COMMERCIAL  
DATA SOURCE: JPL

LDC RAD. TYPE: 794-1 2.5MEV EL.  
PART QTY.: 4  
BIAS: V+=+12V, V=-12V

CUM. DOSE(RADS): 0

PARAMETERS	1K		6K		10K		40K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D VDS MV	-.022	.032	-.202	.062	-.337	.104		
D IDS NA	-.079	.092	-.128	.396	-.356	.491		
D IB NA	.116	.168	.879	1.879	1.516	3.538	FAIL	FAIL
GAIN(+3V)	119.3	2.307	117.5	1.812	111.3	.476	109.8	.638
GAIN(-3V)	116.2	0.726	115.2	0.642	110.1	1.133	10.7	1.154

REMARKS:

GENERIC PART NUMBER: 2901  
FUNCTION: 4-BIT MICROPROCESSR.  
TECHNOLOGY: TTL  
REF. NO.: 1074  
RECORD: 5760

MANUFACTURER: AMD  
PART NUMBER: AM2901  
SPECIFICATION: TRW

LDC RAD. TYPE: UNK.  
PART QTY.: 5  
BIAS: UNK.

CUM. DOSE(RADS): 0

\*N+=500K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>OH</sub> (13)* V	2.979	.0170	2.970	.0243				
V <sub>OL</sub> (14)* V	.3069	.0108	.3019	.0123				
-ISC(13)* MA	60.71	6.969	62.62	9.421				
-IIL(28)* UA	304.1	10.98	308.7	14.83				

REMARKS: \*NEUTRON RAD. = 6.E11 N/SQCM. \*(X)=AVERAGE OVER X PINS.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
2909	4-BIT UPORG SEQNCER	BIPOLAR	1055	5570

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	AM2909		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7811D	CO-60 + N*	10	VCC(PIN 28)=+5V.

CUM. DOSE(RADS): 0 \*N+200K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOL1(CNP4) MV	304.2	5.594	304.5	5.503				
VOL1(Y3) MV	273.1	6.773	275.1	6.887				
VOL1(Y2) MV	273.0	7.379	274.8	7.554				
VOL1(Y1) MV	268.7	7.424	270.4	7.291				
VOL1(Y0) MV	269.3	7.987	271.4	7.806				
IIL(PUP) UA	-4.7	78.60	-453	42.38				
IIL(OE) UA	-485	27.13	-479	27.43				

REMARKS: \*NEUTRON RAD. = 6.25E11 N/SQCM.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
2909	4-BIT MICRPRQG SEQR	TTL	1075	5770

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	AM2909DM		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
***	CO-60 + N*	5	VCC=+5V.

CUM. DOSE(RADS): 0 \*N+100K \*N+300K \*N+500K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIL(5) V	1.592	.0150	1.591	.0167	1.589	.0162	1.584	.0164
VIL(5) MV	788.8	29.40	757.6	62.20	784.0	54.80	775.6	62.55
VOL(5) V	2.912	.0243	2.906	.0248	2.903	.0249	2.904	.0250
VOL(5) MV	259.8	16.54	261.5	16.57	263.0	16.59	262.8	16.56

@IOL=4MA

CONTINUED ... ON REC. 5771  
 REMARKS: \*NEUTRON RAD. = 6.E11 N/SQCM. \*\*\*7816DP. \*\*(X)=AVERAGE OVER X PINS.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
2909	4-BIT MICRPROG SEQR	TTL	1075	5771

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	AM2909DM		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0

PARAMETERS	N+100K		N+300K		N+500K	
	MEAN	SD	MEAN	SD	MEAN	SD
VOL(5) MV	305.6	19.26	307.0	19.27	309.0	19.31
@IOL=8MA						
VOL(5) MV	346.0	22.08	347.9	22.09	349.6	22.11
@IOL=12MA						
-IOS(5) MA	62.65	2.032	62.51	2.033	62.36	2.034
IOZH(4) NA	1.675	.3945	1.180	.6325	1.203	.5378
-IOZL(4) NA	.1455	.2980	.0755	.5221	-.081	.4338

REMARKS: CONTINUATION OF REC. 5770. CONTINUED ON RECORD 5772.

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
2909	4-BIT MICRPROG SEQR	TTL	1075	5772

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	AM2909DM		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0

PARAMETERS	N+100K		N+300K		N+500K	
	MEAN	SD	MEAN	SD	MEAN	SD
ITL(21) UA	310.7	11.20	307.3	11.54	306.8	11.58
IIH1(21) PA	514	265.0	474	478.5	522	379.6
IIH2(21) NA	1.245	.3776	.9545	.5802	1.072	.4594
ICC(1) MA	99.60	4.722	96.82	4.789	96.60	4.775
@PIN 28						
(VCC=5.5V)						

REMARKS: CONTINUATION OF RECORD 5771.

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\*\*\*\*\*  
 GENERIC PART NUMBER: 307  
 \*\*\*\*\*  
 FUNCTION: DUAL SPDT SWITCH  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 25-19 2180

\*\*\*\*\*  
 MANUFACTURER: SILICONIX  
 PART NUMBER: DG307AP  
 SPECIFICATION: AEROJET  
 DATA SOURCE: AEROJET

LDC RAD. TYPE PART QTY. BIAS  
 7834 CO-60 5 UNK.

CUM. DOSE (RADS): 0 14K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 VIN\* 5PASS 5PASS  
 IS(OFF) \*\* MA 5PASS 5FAIL  
 ID(OFF) \*\* MA 5PASS 5FAIL  
 ID(ON) \*\* MA 5PASS 5FAIL  
 I1 \*\*\* MA 5PASS 3.1 5FAIL  
 I2 \*\*\* MA 5PASS 3.1 5FAIL  
 INH 5PASS  
 REMARKS: \*INL ALSO PASSED. \*\*SPEC. MAX=2UA. \*\*\*SPEC. MAX: I1=10UA; I2=-10UA.

\*\*\*\*\*  
 GENERIC PART NUMBER: 336  
 \*\*\*\*\*  
 FUNCTION: RF PHASE DETECTOR  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1-126 2140

\*\*\*\*\*  
 MANUFACTURER: MOTOROLA  
 PART NUMBER: MIC336  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 4 UNK.

CUM. DOSE (RADS): 0 30K 75K 150K 600K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 DET BAL V 1A .799 .78 .0133 .76 .0120 .75 .0128 .72 .0123  
 DET BAL V 1B .933 .92 .0363 .91 .0162 .90 .0152 .86 .0111

REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER 336  
 FUNCTION RF PHASE DETECTOR  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 1-127 2150  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER MOTOROLA  
 PART NUMBER MIC336  
 SPECIFICATION  
 DATA SOURCE JPL  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 4 UNK.  
 \*\*\*\*\*

CUM.DOSE(RADS): 0 30K 75K 150K 600K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 DET BAL V 1A .744 .74 .0317 .72 .0350 .71 .0312 .69 .0272  
 DET BAL V 1B .782 .78 .0248 .76 .0217 .77 .0243 .74 .0207  
 \*\*\*\*\*

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER 339  
 FUNCTION QUAD COMPARTOR  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 100 2200  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER FAIRCHILD  
 PART NUMBER UA339PC  
 SPECIFICATION  
 DATA SOURCE WESTINGHOUSE  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 7918 CO-60 5 V+=+5V  
 \*\*\*\*\*

CUM.DOSE(RADS): 0 400K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 VIOS MV .2095 .2138 00000 2.042  
 IIB NA -.340 .0165 -.105 .7165  
 IOS NA .0305 .4811 -.446 1.633  
 \*\*\*\*\*

REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER: 339  
 \*\*\*\*\*

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 \*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
339	QUAD COMPARATORS	BIPOLAR	100	2220

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AMD	LM339N		WESTINGHOUSE

LDC	RAD. TYPE	PART QTY.	BIAS
7842D	CO-60	5	V+=5V

CUM. DOSE (RADS): 0 400K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V10S	MV	-.147	.3201	.1240	1.678			
I1B	NA	-.349	.0137	-.350	0.0000			
I0S	NA	.0245	.0932	0.275	1.819			

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
339	QUAD COMPARATORS	BIPOLAR	100	2230

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SIGNETICS	LM339N		WESTINGHOUSE

LDC	RAD. TYPE	PART QTY.	BIAS
7924	CO-60	5	V+=5V

CUM. DOSE (RADS): 0 400K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V10S	MV	-.042	.1688	.4360	1.381			
I1B	NA	-.306	.0506	.4238	2.365			
I0S	NA	-.003	.0747	-.219	1.857			

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 339  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
371	12-BIT D/A CONVRTR.	CMOS	1-133	2120

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MNC	MN371		JPL

LDC RAD. TYPE PART QTY. BIAS  
 \*\* 2.2MEV EL 2 VCC=15V, VEE=-15V.

CUM. DOSE (RADS): 0 30K 75K 150K 300K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 NONLIN \* LSB .1940 .4760 .8160 2.170 5.250  
 ABS ERR MV 4.970 16.57 36.40 69.80 112.2  
 +SR(MIN) MV/S 639.0 610.0 567.0 513.0 452.0  
 -SR(MIN) MV/S 686.0 658.0 643.0 627.0 595.0  
 IIR(MAX) PA 700.0 534.0 530.0 557.0 592.0  
 IIR(MAX) UA 125.9 126.1 126.0 126.2 126.2  
 --PARAMETERS CONT. ON REC. 2121  
 REMARKS: \*\*7709, 7711. \* MEAN=WORST-CASE VALUE (NOT AVG.) @VCC=15V, VEE=-15V.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
371	12-BIT D/A CONVRTR.	CMOS	1-133	2121

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MNC	MN371		

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS): 0 30K 75K 150K 300K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 ABS ACC (MAX) % FSR .0497 .1658 0.364 0.696 1.122  
 ICC-L(MAX) MA 2.30 2.29 2.28 2.27 2.26  
 ICC-H(MAX) MA 1.920 1.914 1.904 1.895 1.885  
 IEE-L(MAX) MA 2.09 2.07 2.06 2.06 2.04  
 IEE-H(MAX) MA 2.12 2.11 2.11 2.10 2.09

REMARKS: CONTINUATION FROM RECORD 2120. \*END OF PARAMETERS.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4N24	OPTICAL ISOLATOR	BIPOLAR	1028	5300

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TEXAS INSTRUMENTS	4N24		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7744A	CO-60	10	PINS: 3@25V; 5.1 VIA 10K TO GND; 7@1.0V; 2@GND.

CUM. DOSE (RADS):	O	100K		300K		500K		750K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS									
IR	NA	16.39	13.73	17.92	13.69	17.65	14.07	16.97	13.43
IC(OFF)	NA	7.340	4.987	167.3	157.9	2.260	1.194	190.0	212.4
IC(ON)	MA	18.55	4.065	15.13	3.178	11.83	2.319	10.59	2.025
VF	MV	1168.	3.743	1170.	3.479	1171.	3.542	1170.	3.598
VCE(SAT)	MV	153.2	20.37	152.9	15.94	168.2	17.35	176.8	18.88
HFE		1381.	368.5	1094.	284.5	854.5	235.3	797.9	222.1

REMARKS: CONTINUED ON RECORD 5301.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4N24	OPTICAL ISOLATOR	BIPOLAR	1028	5301

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	4N24		

LDC	RAD. TYPE	PART QTY.	BIAS
7744A	CO-60	10	

CUM. DOSE (RADS):	O	100K		300K		500K		750K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS									
TR	US	4.06	.7338	3.85	.6546	3.42	.5075	4.51	1.418
TF	US	4.03	1.041	3.56	.8102	2.78	.7208	2.67	.6357

REMARKS: CONTINUED FROM RECORD 5300.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4001	QUAD 2-INPUT NOR	CMOS	48	2390

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD4001B		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	4	UNK.

CUM. DOSE (RADS): 0 5K 10K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ICC	UA	.0100	.0100		105.0			
VTH	V	5.65	5.23		4.62			
VIL	V	4.88	4.49		3.69			
IIN	NA	10.0	10.0		11.0			
IIL	NA	10.0	10.0		10.0			
TPHL	NS	63.3	64.6		49.1			
TPLH	NS	57.9	64.2		32.4			

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TEC INLOGY	REF. NO.	RECORD
4001	QUAD 2-INPUT NOR	CMOS	48	2400

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	CD4001B		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	UNK.

CUM. DOSE (RADS): 0 5K 10K 30K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IDD	NA	10.0	10.0		10.00			
VTH	V	5.66	4.68		4.67		1.81	
VIL	V	5.02	4.36		2.91		FAIL	
IIN	NA	10.0	10.0		10.0		FAIL	
IIL	NA	10.0	10.0		10.0		FAIL	
TPHL	NS	68.8	68.4		46.9			
TPLH	NS	64.4	69.6		29.9			

REMARKS:

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REMARKS: CONT. FROM REC. 5190. (3)AV. (2PR.+INV.). VS=7V.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4011	QUAD NAND GATE	COS/MDS	1020	5200

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD4011A		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7824	CD-60	5	VDD=7V; 1KHZ SQ WAVE (0-7V, 50% DUTY CYC) @ PIN 10

CUM. DOSE (RADS): 0

PARAMETERS	0		50K		100K		200K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IL(VS=5V) PA	21	2	53	10	150	20	1510	201	6040	702
VOL(1) MV	29.3	0.75	29.2	0.63	29.9	0.74	30.6	1.76	32.6	0.80
VOL(1) MV	6.850	0.006	6.842	0.007	6.839	0.007	6.830	0.007	6.826	0.009
VTHN(1)(2) V	1.613	0.023	1.364	0.026	1.227	0.033	1.037	0.018	0.956	0.012
VTHP(1)(2) V	-1.88	0.036	-2.15	0.301	-2.29	0.038	-2.52	0.033	-2.71	0.034
IL(VS=7V) PA	29	4	61	12	177	22	1580	205	6320	507
IL(VS=10V) PA	37	6	77	13	223	28	1710	246	6660	445

REMARKS: CONTINUED ON RECORD 5201. (1)VS=7V. (2)ID=10UA.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4011	QUAD NAND GATE	COS/MDS	1020	5201

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD4011A		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0

PARAMETERS	0		50K		100K		200K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIL(1) V	3.358	0.027	3.096	0.030	2.966	0.031	2.774	0.030	2.656	0.029
VIH(1) V	3.372	0.032	3.114	0.026	2.984	0.033	2.788	0.030	2.676	0.029
TTLH(1) NS	37	2.28	38	2.39	39	3.21	47	3.91	49	2.41
TTL(1) NS	37	2.28	37	2.28	37	1.87	37	1.92	38	1.48
TPLH(1) V	22.4	1.140	24.6	1.342	24.6	1.342	28.0	2.450	29.2	0.837
TPL(1) V	24.6	1.140	24.2	1.096	23.4	0.894	23.2	0.837	23.8	0.837

REMARKS: CONTINUED FROM REC. 5200. (1)VS=7V. \*CONTINUED ON RECORD 5202

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4011	QUAD NAND GATE	CMOS/MOS	1020	5202

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD4011A		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0 50K 100K 200K 300K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
VNML(1)	V	3.329	0.027	3.067	0.030	2.936	0.031	2.743	0.030	2.623	0.029
VNMH(1)	V	3.478	0.029	3.728	0.023	3.855	0.031	4.042	0.024	4.150	0.024

\*

REMARKS: \*CONTINUED FROM RECORD 5201. (1)VS=7V.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
40115	8 BIT INTERFACE	CMOS	49	2250

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD40115		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	4	UNK.

CUM. DOSE (RADS): 0 5K 8K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ID0	MA	3.53	4.310	9.110				
ICC	UA	2.05	17.35	0.920				
IDD	MA	1.18	1.42	7.24				
IOL	MA	17.08	17.33	18.86				
IOH	MA	8.33	8.90	10.60				

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4013	DUAL D FLIP-FLOP	CMOS	1-17	2300
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
RCA CORPORATION	CD4013		JPL	

LDC RAD. TYPE PART QTY. BIAS  
 NONE CO-60 3 UNK.

CUM. DOSE (RADS): 0									
PARAMETERS		75K		15K		300K		600K	
MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DISS1(NA)	.008	2.7	.1100	3.8	.1607	5.4	.1500	8.2	.1500
DISS2(NA)	.137	3.0	.1300	4.8	.2179	6.2	.2500	10.0	.1803
DVTN(V)	1.54	1.6	.0171	1.5	.0216	1.45	.0303	1.41	.0333
DVTP(V)	1.51	1.6	.0061	1.65	.0064	1.7	.0086	1.85	.0133

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4013	DUAL D FLIP FLOP	CMOS	1-18	2310
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
RCA CORPORATION	CD4013		JPL	

LDC RAD. TYPE PART QTY. BIAS  
 NONE CO-60 3 UNK.

CUM. DOSE (RADS): 0									
PARAMETERS		75K		15K		300K		600K	
MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DISS1	.207	.2	.0493	2.2	.3247	3.8	.7286	6.6	1.268
DISS2	.293	1.6	.0850	2.9	.3523	4.9	.8327	8.0	1.457
DVTN	1.67	1.6	.0215	1.55	.0250	1.45	.0332	1.4	.0384
DVTP	1.39	1.5	.0070	1.55	.0068	1.6	.0100	1.75	.0172

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4013	DUAL FLIP-FLOP	CMOS	50	2410

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TEXAS INS	CD4013A		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	UNK.

CUM. DOSE (RADS):		0		10K	
PARAMETERS	MEAN	SD	MEAN	SD	
D VOL(Q1) MV			9.895	.9699	
D VOL(Q2) MV			4988.	4990.	
D VUH(Q1) MV			-1.25	.4791	
D VUH(Q2) MV			-.598	.4050	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4013	DUAL FLIP-FLOP	CMOS	50	2420

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD4013B		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	UNK.

CUM. DOSE (RADS):		0		5K		10K		30K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
IDD	VA	3.800		3.880		15.80		1970.	
IHH	V	5.80		5.75		5.74		FAIL	
VIL	V	4.40		4.48		4.50		FAIL	
IHH	NA	10.0		10.0		10.0		FAIL	
IIL	NA	10.0		10.0		10.0		FAIL	
TPHL	NS	117.0		118.0		89.2		FAIL	
TPLH	NS	49.8		50.0		52.8		FAIL	

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4013	DUAL FLIP-FLOP	CMS	50	2430

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	CD4013B		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	0		5K		10K		30K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IDD	3.86		3.90		30.00		6.96	
VIH	5.58		5.62		5.56		FAIL	
VIL	4.64		4.60		4.43		FAIL	
IIH	10.0		10.0		10.0		FAIL	
IIL	10.0		10.0		10.0		49000	
TPLH	113.0		111.0		112.0			
TPLH	60.0		56.0		57.5			

REMARKS:

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4013	DUAL D FLIP-FLOP	COS/MOS	1021	5210

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD4013A		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7824	CO-60	5	VDD=7V; 1KHZ SQ WAVE (0-7V, 50% DUTY CYC) @ PIN 11

CUM. DOSE (RADS): 0

PARAMETERS	0		50K		100K		200K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IL(VS=5V)	0.035	0.026	0.092	0.028	0.682	0.370	27.64	13.03	377.0	301.1
VOL(1)	16.6	0.95	16.4	0.98	17.0	1.04	18.3	1.09	19.7	1.18
VOH(1)	6.744	0.010	6.68P	0.014	6.629	0.018	6.480	0.037	6.200	0.128
VTHN(1)(2)	1.769	0.078	1.477	0.078	1.548	0.080	1.776	0.080	4.148	6.122
VTHP(1)(2)	-1.92	0.071	-3.02	0.100	-3.79	0.124	-4.79	0.141	-5.45	1.682
IL(VS=7V)	55	42	118	39	728	373	28880	14320	60800	28438
IL(VS=10V)	94	72	183	71	1782	2327	30940	15350	65700	30768

REMARKS: PARAMS. CONTINUED ON REC. 5211. (1)VS=7V. (2)ID=10UA.

\*\*\*\*\*  
 GENERIC PART NUMBER: 4013  
 FUNCTION: DUAL D FLIP-FLOP  
 TECHNOLOGY: COS/MOS  
 REF. NO. RECORD: 1021 5211

\*\*\*\*\*  
 MANUFACTURER: RCA  
 PART NUMBER: CD4013A  
 SPECIFICATION: DATA SOURCE

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE(RADS): 0  
 PARAMETERS: MEAN SD 50K 100K 200K 300K  
 \*  
 VIL(1) V 3.272 0.102 2.680 0.104 2.448 0.113 2.202 0.131 2.026 0.140  
 VIH(1) V 3.242 0.102 2.678 0.113 2.468 0.118 2.242 0.125 2.070 0.141  
 TTLH(1) NS 46 3.29 61 3.35 77 5.18 119 26.10 204 26.32  
 TPLH(1) NS 52 6.23 54 4.00 61 5.93 74 3.77 91 7.42  
 TPLH(1) NS 76 4.98 87 9.23 106 12.70 154 9.62 217 17.18  
 TPLH(1)\*\* NS 97 6.42 98 8.88 110 12.12 139 15.01 195 27.16  
 REMARKS: \*CONTINUED FROM REC. 5210. (1)VS=7V. \*\*PARAMS. CONT. ON REC. 5212.

\*\*\*\*\*  
 GENERIC PART NUMBER: 4013  
 FUNCTION: DUAL D FLIP-FLOP  
 TECHNOLOGY: COS/MOS  
 REF. NO. RECORD: 1021 5212

\*\*\*\*\*  
 MANUFACTURER: RCA  
 PART NUMBER: CD4013A  
 SPECIFICATION: DATA SOURCE

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE(RADS): 0  
 PARAMETERS: MEAN SD 50 100K 200K 300K  
 \*  
 TPW(MIN)\*\* NS 78 6.65 75 6.10 79 6.76 97 6.99 164 66.07  
 FMAX\*\* KHZ 6914 425 6568 505 5772 412 3894 327 2622 530  
 VNMH\*\* MV 3255 101 2664 104 2431 112 2184 131 2006 139  
 VNMH\*\* MV 3502 106 4010 115 4161 114 4238 114 4129 49

\*\*\*\*\*  
 REMARKS: \*CONTINUED FROM RECORD 5211. \*\*VS=7V.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4014	8-STAGE S SHIFT REG	COS/MOS	1022	5220

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD4014A		TRW

LDC	RAD	TYPE	PART QTY.	BIAS
7826	CD	60	5	VDD=7V.

CUM. DOSE (RADS) :		0		50K		100K		200K		300K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IL(VS=5V)	PA	279	273	2440	3992	8766	13177	20680	24379	17920	15918
VOL(1)	MV	133	4	132	4	134	4	138	5	144	5
VOH(1)	V	6.189	0.057	6.064	0.095	5.912	0.075	5.514	0.258	4.816	0.546
VTHN(1)(2)	V	1.485	0.151	1.137	0.131	1.076	0.141	1.148	0.136	1.334	0.111
VTHP(1)(2)	V	-2.05	0.223	-3.08	0.203	-3.67	0.150	-4.43	0.163	-4.99	0.154
IL(VS=7V)	PA	492	571	2638	4086	9182	13551	21480	25101	18500	16243
IL(VS=10V)	PA	825	1063	3030	4139	10290	14709	23620	26888	20020	16765

REMARKS: PARAMETERS CONTINUED ON RECORD 5221. (1)VS=7V. (2)ID=20UA.

REMARKS: PARAMETERS CONTINUED ON RECORD 5221. (1)VS=7V. (2)ID=20UA.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4014	8-STAGE S SHIFT REG	COS/MOS	1022	5221

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CR4014A		

LDC	RAD.	TYPE	PART	QTY.	BIAS

CUM. DOSE (RADS):		0		50		100		200		300	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
*											
VIL(1)	MV	3046	210	2510	198	2352	181	1966	169	1830	163
VIH(1)	MV	3016	210	2494	191	2240	178	1968	168	1838	164
TTLH(1)	NS	137	8	172	22	214	37	70	450	116	116
TTHL(1)	NS	95	6	96	5	96	5	107	16	132	18
TPLH(1)	NS	197	8	233	14	278	23	384	52	520	78
TPLH(1)	NS	171	9	185	8	205	11	264	30	342	36
REMARKS: *CONT. FROM REC 5220. (1)VS=7V. PARAMETERS CONTINUED ON RECORD 5222.											

REMARKS: \*CONT, FROM REC 5220. (1)VS=7V. PARAMETERS CONTINUED ON RECORD 5222.

\*\*\*\*\*  
 GENERIC PART NUMBER: 4014  
 FUNCTION: 8-STAGE S SHIFT REG  
 TECHNOLOGY: COS/MOS  
 REF. NO. RECORD: 1022 5222

\*\*\*\*\*  
 MANUFACTURER: RCA  
 PART NUMBER: CD4014A  
 SPECIFICATION: DATA SOURCE

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS): 0  
 50K 100K 200K 300K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 \*  
 TPW(MIN)\*\* NS 102 7 105 8 112 7 139 10 166 11  
 FMAX\*\* KHZ 4928 351 4796 356 4484 271 3622 259 2478 549  
 VNML\*\* MV 2913 209 2378 198 2118 181 1828 169 1686 163  
 VNMH\*\* MV 3173 173 3570 132 3672 130 3564 160 2978 408

\*\*\*\*\*  
 REMARKS: \*CONTINUED FROM RECORD 5221. \*\*VS=7V.  
 \*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER: 4015  
 FUNCTION: 4-STAGE SHIFT REG  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 24-36 2460

\*\*\*\*\*  
 MANUFACTURER: NATIONAL  
 PART NUMBER: CD4015MW  
 SPECIFICATION: COMMERCIAL  
 DATA SOURCE: ROCKWELL

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 8039 CO-60 4 VDD=9V=DATA, ALL OTHER PINS TIED TO GND

CUM. DOSE (RADS): 0  
 10K 20K 30K 50K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 D VOH MV -23.7 4.952 -161. 26.93 -255. 43.00 -6700 04630  
 D IDD UA 219.0 55.00 1.4E3 269 . 986.3 407.2 2.3E3 879.0

\*\*\*\*\*  
 REMARKS:  
 \*\*\*\*\*

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-----  
 GENERIC PART NUMBER    FUNCTION    TECHNOLOGY    REF. NO. RECORD  
 -----  
 4015                    4-STAGE SHIFT REG.    CMOS                    24-35    2520  
 -----

-----  
 MANUFACTURER                    PART NUMBER                    SPECIFICATION                    DATA SOURCE  
 -----  
 NATIONAL                        CD4015MW                        COMMERCIAL                        ROCKWELL  
 -----

-----  
 LDC    RAD. TYPE    PART QTY.    BIAS  
 -----  
 8011    CO-60                    4                    VDD=9V=DATA, ALL OTHER PINS TIED TO GND  
 -----

CUM. DOSE (RADS):                    0                    10K                    20K                    30K                    50K  
 -----  
 PARAMETERS                    MEAN    SD                    MEAN    SD                    MEAN    SD                    MEAN    SD                    MEAN    SD  
 -----  
 D VOH                    MV                    -69.3    20.76                    -378.    81.07                    -170.    55.37                    -923.    454.3  
 D IDD                    UA                    575.5    193.8                    1.1E3    845.6                    1.2E3    354.4                    2.2E3    270.6  
 -----

REMARKS:

\*\*\*\*\*

-----  
 GENERIC PART NUMBER    FUNCTION    TECHNOLOGY    REF. NO. RECORD  
 -----  
 4016                    QUAD BILATERAL SW.    CMOS                    24-37    2470  
 -----

-----  
 MANUFACTURER                    PART NUMBER                    SPECIFICATION                    DATA SOURCE  
 -----  
 NATIONAL                        CD4016MW                        COMMERCIAL                        ROCKWELL  
 -----

-----  
 LDC    RAD. TYPE    PART QTY.    BIAS  
 -----  
 7902    CO-60                    5                    VDD=10V, 2 SWITCHES ON, 2 SWITCHES OFF  
 -----

CUM. DOSE (RADS):                    0                    10K                    20K                    30K                    50K  
 -----  
 PARAMETERS                    MEAN    SD                    MEAN    SD                    MEAN    SD                    MEAN    SD                    MEAN    SD  
 -----  
 D IDD(ON)                    NA                    0.040    0.055                    0.040    0.055                    0.080    0.045                    245.5    533.6  
 D IDD(OFF)                    NA                    0.120    0.045                    1.5E3    3.4E3                    10.16    14.42                    4.1E3    3.7E3  
 D IL(A-SW)                    NA                    0.000    0.173                    193.0    431.4                    0.180    0.522                    7.0E3    4.4E3  
 D IL(B-SW)                    NA                    0.200    0.122                    703.6    1.5E3                    67.34    83.15                    1.2E3    2.8E3  
 D IL(C-SW)                    NA                    0.040    0.089                    280.0    598.4                    26.90    47.52                    1.5E3    2.7E3  
 D IL(D-SW)                    NA                    0.000    0.000                    2.0E3    4.4E3                    .500    0.686                    8.0E3    4.5E3  
 -----

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4016	GUAD BILATERAL SW.	CMOS	24-38	2480

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	CD4G16MW	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
8039	CO-60	4	VDD=10V, 2 SWITCHES ON, 2 SWITCHES OFF

CUM. DOSE (RADS) :	0		10K		20K		30K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS								
D IDD(ON) NA			0.000	0.000	0.000	0.000	0.000	0.000
D IDD(OFF) NA			5.7E3	3.8E3	7.0E3	0.000	666.2	3.559
D IL(A-SW) NA			0.007	0.005	8.2E3	2.2E3	9.7E3	81.59
D IL(B-SW) NA			408.2	285.6	0.027	0.042	0.260	0.071
D IL(C-SW) NA			0.222	0.418	0.497	0.928	0.725	1.004
D IL(D-SW) NA			0.450	0.173	8.2E3	2.2E3	9.7E3	125.6

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
40161	4-BIT BINARY COUNT	CMOS	25-20	2530

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FSC	F4016/DM		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7518	CO-60	4	APPLICATION CIRCUIT

CUM. DOSE (RADS):	0			2.5K			10K		
	PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
	V0H **	4PASS		4PASS					
	V0L	4PASS		4PASS					
	VTHN	4PASS		4PASS					
	VTHP	4PASS		4PASS					
	FUNCTIONALITY	4PASS		4PASS				*FAIL	
	IDD QUIESCENT	4PASS		4FAIL					
	IDD DYNAMIC	4PASS		4PASS					

REMARKS: \*\*IIN, IOH, IOL, TD PASS ALL DOSES. \*3 AT VDD=5V. ALL AT 15V (VI DEGRAD.)

GENERIC PART NUMBER: 40161

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
40174	HEX D FLIPFLOP	CMOS	25-21	2670

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FSC	F40174DM		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7547	CO-60	5	+5V. 500-KHZ SQUARE-WAVE CLOCK.

CUM. DOSE(RADS): 0 15.3K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>OH</sub> ***	5PASS		5PASS					
V <sub>OL</sub>	5PASS		5PASS					
I <sub>IN</sub>	5PASS		**					
I <sub>OH</sub>	5PASS		5PASS					
I <sub>OL</sub>	5PASS		5PASS					
IDD QUIESC. A	7E-10	3E-10	*3E-3	1E-3				
IDD DYNAMIC A	3E-4	1E-5	9E-3	4E-3				

REMARKS: \*\*\*TLH, TLH PASS ALL DOSES. \*SPEC. MAX. = 2UA. \*\*9 OF 30 FF'S FAIL.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4019	QUAD 2 INPUT MUX	CMOS	25-24	2620

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FSC	F4019DM		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7653	CO-60	5	APPLICATION CIRCUIT

CUM. DOSE(RADS): 0 2.0K 10K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
FUNCTIONALITY	5PASS		5PASS		5PASS		5PASS	
V <sub>OH</sub> **	5PASS		5PASS		5PASS		5PASS	
V <sub>OL</sub>	5PASS		5PASS		5PASS		5PASS	
I <sub>IN</sub>	5PASS		5PASS		5PASS		5PASS	
I <sub>OH</sub>	5PASS		5PASS		5PASS		5PASS	
IDD QUIESCENT	5PASS		5PASS		5PASS		5PASS	
IDD DYNAMIC	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*\*IOL, TLH, TLH PASSED ALL DOSES. \*SOME. \*\*\*POSS. FAIL (DATA NOT SPECIF)

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\*\*\*\*\*  
 GENERIC PART NUMBER: 4020  
 FUNCTION: 14-STAGE BIN COUNTER  
 COS/MOS  
 REF. NO. RECORD  
 1022A 5230  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: RCA  
 PART NUMBER: CD4020A  
 SPECIFICATION: TRW  
 DATA SOURCE: TRW  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 7824 CO-60 5 VDD=7V; 1KHZ SQ WAVE (O-7V 50% DUTY CYC) TO PIN 10  
 \*\*\*\*\*

CUM. DOSE (RADS): 0 50K 100K 200K 300K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 ILA(VS=5V) NA 2.980 5.887 2000. 4472. 1005. 2233. 407.8 532.4 400.4 245.7  
 ILA(VS=7V) NA 3.497 6.457 2201. 4919. 1025. 2278. 1076. 2027. 378.0 234.5  
 ILA(VS=10V) NA 4.106 6.997 2401. 5366. 1046. 2322. 1148. 2154. 395.2 218.9  
 ILB(VS=5V) NA 2.741 5.518 2000. 4472. 981.1 2191. 403.9 434.9 420.4 250.8  
 ILB(VS=7V) NA 3.197 6.066 2200. 4919. 1001. 2235. 784.4 1742. 85.22 170.4  
 ILB(VS=10V) NA 3.813 6.890 2401. 5366. 1022. 2280. 844.3 1876. 84.72 170.7  
 VOL(VS=7V) MV 21.2 4.33 21.8 4.20 20.7 0.73 22.4 1.94 28.1 5.52  
 REMARKS: PARAMETERS CONTINUED ON RECORD 5231.  
 \*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER: 4020  
 FUNCTION: 14-STAGE BIN COUNTER  
 COS/MOS  
 REF. NO. RECORD  
 1022A 5231  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: RCA  
 PART NUMBER: CD4020A  
 SPECIFICATION: TRW  
 DATA SOURCE: TRW  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 CO-60  
 \*\*\*\*\*

CUM. DOSE (RADS): 0 50K 100K 200K 300K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 VOH(1) MV 6582 23 6542 32 6482 30 6376 38 6247 52  
 VTHN(1)(2) MV 1814 30 1477 42 1424 50 1556 53 7880 3546  
 VTHP(1)(2) MV -2797 69 -3848 204 -4511 51 -4789 39 -8765 68  
 VIL(1) MV 3442 67 2914 48 2676 40 2410 44 2270 44  
 VIH(1) MV 3470 73 2954 47 2710 41 2452 52 2316 44  
 TTLH(1) NS 52.0 2.739 62.0 4.472 68.0 5.701 91.0 2.236 118.0 8.367  
 TTHL(1) NS 45.0 3.536 46.0 8.216 50.0 11.73 53.0 4.472 64.0 5.477  
 REMARKS: CONT. FROM REC. 5230. (1)VS=7V. (2)ID=20UA. CONTINUED ON REC. 5232.  
 \*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4020	14-STAGE BIN COUNT	COS/MOS	1022A	5232

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
PCA	CD4020A		

LDC	RAD.	TYPE	PART	QTY.	BIAS

CUM. DOSE (RADS) :		0		50K		100K		200K		300K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TPLH(1)	NS	174.0	6.519	222.0	11.51	265.0	7.071	360.0	11.73	496.0	25.10
TPLH(1)	NS	141.0	5.477	195.0	20.00	220.0	33.73	267.0	7.583	342.0	10.95
TPW(MIN)	(1)NS	35.6	1.67	38.8	1.64	46.2	1.79	62.2	2.49	90.6	7.92
TMAX(1)	KHZ	4462	207	3724	1355	3076	102	2134	799	1520	97

REMARKS: CONTINUATION FROM RECORD 5231. (1)VS=7V.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4027	DUAL J-K FLIP-FLOP	CMOS	1-19	2320

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA CORPORATION	CD4027		JPL

LDC	RAD.	TYPE	PART	QTY.	BIAS
7936	CO-60		6	UNK.	

CUM. DOSE(RADS):		0									
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DISS1		.237		1.35	.1859	2.7	.2971	5.2	.8004	11.	2.104
GISS2		.286		1.4	.3149	2.9	.2058	6.4	.8483	13.	3.305
DVTN		1.44		1.35	.0365	1.3	.0139	1.25	.0188	1.25	.0202
DVPN		1.84		1.4	.6709	1.42	.6862	1.45	.7109	1.6	.7481

REMARKS:

GENERIC PART NUMBER: 4027

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4027	DUAL JK MS FLIPFLOP	COS/MDS	1023	5240

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD4027A		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7819	CO-60	5	VDD=7V; 1KHZ SQ WAVE (0-7V, 50% DUTY CYC) TO PIN 3.

CUM. DOSE (RADS): 0

PARAMETERS	0		50K		100K		200K		300K		
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
IL(VS=5V)	NA	0.105	0.026	0.164	0.041	4.100	1.639	207.3	205.5	832.0	142.5
IL(VS=7V)	NA	0.136	0.025	0.203	0.026	2.210	1.787	29.80	16.88	323.4	328.8
IL(VS=10V)	NA	0.177	0.038	0.248	0.064	1.740	0.219	28.80	19.18	86.80	81.05
VOL(1)	MV	15.57	0.126	15.42	0.238	15.68	0.194	16.59	0.211	17.92	0.599
VOH(1)	MV	6817	3	6790	6	6770	8	6725	10	6677	17
VTHN(1)(2)	MV	1603	6	1305	7	1251	14	1301	23	1435	16
VTHP(1)(2)	MV	-1709	11	-2477	37	-2980	55	-3648	79	-4076	95

REMARKS: CONTINUED ON RECORD 5241. (1)VS=7V. (2)ID=10UA.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4027	DUAL JK MS FLIPFLOP	COS/MDS	1023	5241

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD4027A		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0

PARAMETERS	0		50K		100K		200K		300K		
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
VIH(1)	MV	3558	22	3140	29	2912	33	2652	43	2524	42
TTLH(1)	NS	44.0	2.828	48.4	2.966	54.8	2.280	69.6	0.894	82.0	2.739
TTL(1)	NS	54.6	2.967	58.8	5.215	66.4	1.673	94.0	8.216	166.0	38.31
TPH(1)	NS	77.0	2.000	82.4	2.608	92.8	1.095	114.0	8.216	139.0	8.216
TPHL(1)	NS	105.2	3.033	107.6	2.966	118.0	3.742	160.0	7.906	244.0	17.82
TPW(MIN)	(1)NS	106	2.5	116	7.8	129	2.2	179	15.0	286	41.1
FMAX(1)	KHZ	4814	146	4502	223	4070	77	2974	173	1768	257

REMARKS: CONTINUATION FROM RECORD 5240. (1)VS=7V. CONTINUED ON RECORD 5242.

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\*\*\*\*\*  
 GENERIC PART NUMBER: 4027  
 FUNCTION: DUAL JK MS FLIPFLOP  
 TECHNOLOGY: COS/MOS  
 REF. NO. RECORD: 1023 5242  
 MANUFACTURER: RCA  
 PART NUMBER: CD4027A  
 SPECIFICATION: DATA SOURCE: \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS):		0		50K		100K		200K		300K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VNML*	MV	3542	22	3125	29	2896	33	2635	43	2506	42
VNMH*	MV	3259	23	3650	32	3858	31	4073	41	4153	35

REMARKS: CONTINUATION FROM RECORD 5241. \*VS=7V.

\*\*\*\*\*  
 GENERIC PART NUMBER: 4028  
 FUNCTION: GATE  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 51 2440  
 MANUFACTURER: RCA  
 PART NUMBER: CD4028B  
 SPECIFICATION: DATA SOURCE: IRT CORP  
 LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO-60 5 UNK. \*\*\*\*\*

CUM. DOSE (RADS):		0		5K		10K		30K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IDD	UA	10000		10000		10000		367	
VIH	V	5.72		5.21		4.95		FAIL*	
VIL	V	4.93		4.84		4.58		FAIL*	
IIH	NA	10.0		10.0		10.0		10.0	
IIL	NA	10.0		10.0		10.0		10.0	
TPH	NS	77.3		77.3		73.9		FAIL*	
TPH	NS	67.0		55.4		55.8		FAIL	

REMARKS: \*NUMBER OF FAILURES UNSPECIFIED.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4029	UP/DOWN COUNTER	CMDS	24-39	2490

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	CD40C29BMW	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
8011	CO-60	4	VDD=IN1=IN2=U/D=8/D=2E=5V. REST TIED TO GND

CUM. DOSE (RADS) :	0		10K		20K		30K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS								
D IDD								
D VOH (P-2) MV			403.7	18.72	3.2E3	87.03	7.4E3	163.7
D VOH (P-6) MV			-31.5	3.307	-287.	32.82	-665.	67.06
D VOH (P-7) MV			-39.4	2.601	-384.	24.83	-101.	0.177
D VOL (P-7) MV			-15.8	1.024	-114.	8.103	-148.	10.87
D VOL (P-7) MV			0.750	0.100	5.725	0.320	9.8E3	9.238
D VOL (P-11) MV			0.525	0.050	4.425	0.330	300.4	55.31
D VOL (P-14) MV			0.650	0.100	5.850	0.300	82.35	31.69

REMARKS:

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4029	UP/DOWN COUNTER	CMOS	24-40	2500

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
R. C. A.	CD40298BW	COMMERCIAL	ROCKWELL

LDC	RAD.	TYPE	PART	QTY.	BIAS
7924	CO-60	4	VDD=IN1=IN2=U/D=B/D=PE=5V. REST TIED TO GND		

CUM. DOSE (RADS) :		0		10K		20K		30K		50K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D	IDD			0.082	0.072	0.060	0.120	0.092	0.026	0.097	0.115
D	V0H(P-2)			0.100	0.200	-0.325	0.126	-0.075	0.096	-0.425	0.126
D	V0H(P-6)			0.050	0.100	-0.175	0.150	0.000	0.000	-0.500	0.082
D	V0H(P-7)			0.100	0.115	-0.250	0.100	0.000	0.000	-0.475	0.050
D	V0L(P-7)			-0.025	0.050	-0.275	0.050	-0.150	0.058	-0.550	0.058
D	V0L(P-11)MV			0.075	0.050	-0.225	0.050	-0.100	0.082	-0.500	0.000
D	V0L(P-14)MV			0.000	0.141	-0.275	0.126	-0.150	0.100	-0.550	0.100

REMARKS :

\*\*\*\*\*

GENERIC PART NUMBER: 4029

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-----  
 GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
 -----  
 4029      UP/DOWN COUNTER      CMOS      24-41      2510  
 -----

-----  
 MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
 -----  
 NATIONAL      CD4029BHW      COMMERCIAL      ROCKWELL  
 -----

-----  
 LDC      RAD. TYPE      PART QTY.      BIAS  
 -----  
 8040      CO-60      4      VDD=IN1=IN2=U/D=B/D=PE=5V, REST TIED TO GND  
 -----

CUM.DOSE(RADS):      0  
 -----  
 PARAMETERS      MEAN      SD      5K      10K      15K      20K  
 -----  
 D IDD      UA      1.000      2.000      71.09      110.1      255.7      410.1      748.5      1.1E3  
 D VOH(P-2)      MV      -.300      0.141      -5.53      7.629      -20.8      33.82      -67.9      94.17  
 D VOH(P-6)      MV      -.275      0.171      -5.38      7.598      -20.2      33.37      -67.5      96.73  
 D VOH(P-7)      MV      -.325      0.126      -2.80      3.350      -7.63      11.95      -20.4      30.32  
 D VOL(P-7)      MV      -.400      0.115      -.150      0.100      -.025      0.618      0.925      2.130  
 D VOL(P-11)      MV      -.400      0.141      -.150      0.100      0.100      0.938      0.550      1.507  
 D VOL(P-14)      MV      -.425      0.150      -.150      0.058      0.050      0.968      0.925      2.254  
 REMARKS:

-----  
 GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
 -----  
 4031B      64 BIT SHIFT REG      CMOS      401-9      2860  
 -----

-----  
 MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
 -----  
 RCA      CD4031B      INSAT PCC 860      FORD AEROSPACE  
 -----

-----  
 LDC      RAD. TYPE      PART QTY.      BIAS  
 -----  
 7914      CO-60      5      VDD=+18V  
 -----

CUM.DOSE(RADS):      C      53K  
 -----  
 PARAMETERS      MEAN      SD      53K  
 -----  
 IDD      NA      13.09      7.499  
 IIH      NA      7.428      1.426  
 VOH1      V      5.000      0.0  
 IOL      MA      12.49      9.840  
 IOH      MA      -2.66      .1531  
 VIH1      V      5.000      0.0  
 VP      V      1.950      .1173  
 REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER: 4035  
 FUNCTION: 4-STG PI/PO SHFTREG  
 COS/MOS  
 REF. NO. RECORD  
 1024 5250

\*\*\*\*\*  
 MANUFACTURER: RCA  
 PART NUMBER: CD4035A  
 SPECIFICATION: TRW  
 DATA SOURCE: TRW

LDC RAD. TYPE PART QTY. BIAS  
 7824 CO-60 5 VDD=7V.

CUM. DOSE (RADS): 0  
 PARAMETERS: MEAN SD 50K 100K 200K 300K  
 IL(VS=5V) PA 15 9 198 67 780 320 4630 2729 19050 30657  
 IL(VS=7V) PA 20 13 212 70 822 330 4810 2833 19380 31010  
 IL(VS=10V) PA 34 16 239 67 932 367 5300 3068 20830 32538  
 VOL(1) MV 22.3 1.7 21.8 1.0 22.6 1.1 27.7 1.2 26.5 1.3  
 VDH(1) MV 6716 16 6704 18 6694 20 6689 16 6675 25  
 VTHN(1)(2) MV 1535 18 1326 29 1257 101 1213 149 1343 358  
 VTHP(1)(2) MV -2470 27 -2689 77 -2863 88 -3053 164 -3259 293  
 REMARKS: CONTINUED ON RECORD 5251. (1)VS=7. (2)ID=20UA.

\*\*\*\*\*  
 GENERIC PART NUMBER: 4035  
 FUNCTION: 4-STG PI/PO SHFTREG  
 COS/MOS  
 REF. NO. RECORD  
 1024 5251

\*\*\*\*\*  
 MANUFACTURER: RCA  
 PART NUMBER: CD4035A  
 SPECIFICATION: DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS  
 CO-60

CUM. DOSE (RADS): 0  
 PARAMETERS: MEAN SD 50K 100K 200K 300K  
 VIH(1) MV 3184 50 3032 57 3036 49 3132 43 3172 118  
 TTLH(1) NS 43 3 46 4 48 5 52 3 56 7  
 TTHL(1) NS 41 2 44 2 48 3 51 2 57 3  
 TPLH(1) NS 125 5 131 7 140 12 152 6 171 17  
 TPHL(1) NS 144 5 149 7 154 12 166 10 186 25  
 TPW(MIN)(1) NS 60 0 58 3 61 9 65 6 74 13  
 FMAX(1) KHZ 5754 222 5480 292 5188 144 4640 143 4064 401  
 REMARKS: CONTINUATION FROM RECORD 5250. (1)VS=7V. CONTINUED ON RECORD 5252.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4035	4-STG PI/PO SHFTREG	CMOS/MOS	1024	5252

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD4035A		

LDC	RAD. TYPE	PART QTY.	BIAS
CD-60			

CUM. DOSE (RADS):	0	50K	100K	200K	300K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD
VNML*	3162	49	3010	56	3107	43
VNMH*	3460	169	3672	47	3557	40
					3146	119
					3503	102

REMARKS: CONTINUATION FROM RECORD 5251. \*VS=7V.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4044	QUAD NAND R/S LATCH	CMOS	52	2450

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MOTOROLA	MC4044		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CD-60	UNK	UNK.

CUM. DOSE (RADS):	0	350K
PARAMETERS	MEAN	SD
D V(OUT)	V	0.034

REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER: 4046  
 \*\*\*\*\*  
 FUNCTION: M/P PHASE-LOCKED/L  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 53 2260

\*\*\*\*\*  
 MANUFACTURER: R.C.A.  
 PART NUMBER: CD4046B  
 SPECIFICATION: IRT CORP  
 DATA SOURCE: IRT CORP

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO-60 5 UNK.

CUM. DOSE (RADS): 0

PARAMETERS	0		5K		10K		30K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IDD	84.00		93.00		112.0		41620	
VZ	5.482		5.277		5.360		5.490	
VIIH	5.38		5.25		5.12		FAIL	
VIL	5.32		4.79		4.86		FAIL	
IIH	10.00		10.00		10.00		FAIL	
IIL	10.00		10.00		10.00		FAIL	
VCO	181.8		182.5		168.4		FAIL	

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 4049  
 \*\*\*\*\*  
 FUNCTION: HEX INVERTING BUFF  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 54 2270

\*\*\*\*\*  
 MANUFACTURER: R.C.A.  
 PART NUMBER: CD4049UB  
 SPECIFICATION: IRT CORP  
 DATA SOURCE: IRT CORP

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO-60 5 UNK.

CUM. DOSE (RADS): 0

PARAMETERS	0		5K		10K		30K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IDD	10.00		10.00		45.00		56000	
VIIH	8.5		7.35		7.26		FAIL	
VIL	1.5		00.81		00.42		FAIL	
IIH	10.00		10.00		10.00		FAIL	
IIL	10.00		10.00		10.00		FAIL	
TPHL	17.30		15.10		14.70		FAIL	
TPLH	21.20		20.10		20.70		FAIL	

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4049	HEX INVERTING BUFF	CMOS	54	2280

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	CD4049UB		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	5K		10K		30K	
	MEAN	SD	MEAN	SD	MEAN	SD
IDD	NA	10.0	1640.		26MA	
V <sub>IH</sub>	V	8.42	7.10		FAIL	
V <sub>IL</sub>	V	1.54	00.65		FAIL	
I <sub>IH</sub>	NA	10.00	10.00		FAIL	
I <sub>IL</sub>	NA	10.00	10.00		FAIL	
T <sub>PHL</sub>	NS	19.10	15.70		FAIL	
T <sub>PLH</sub>	NS	21.30	21.00		FAIL	

REMARKS:

\*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4049	HEX/BUFFER CONVERT	CMOS	1-20	2330

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA CORPORATION	CD4049		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	CO-60	3	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	75K		15K		300K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
I <sub>SS1</sub>	NA	.0233	.3	.2362	1.49	.6500	3.4	.4583
I <sub>SS2</sub>	NA	.0257	1.	.7522	2.1	.9385	3.45	1.950
V <sub>TN(V)</sub>	V	1.05	1.	.0566	.96	.0589	.92	.0618
V <sub>TP(V)</sub>	V	1.28	1.35	.0712	1.36	.0649	1.4	.0741

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4051	8 CHANNEL MUX DEMUX	CMOS	25-30	2560

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FSC	F4051DM		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7722	CO-60	5	V <sub>I</sub> =5V, TYPICAL APPLICATION CIRCUIT

CUM. DOSE (RADS):		0		12K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD
IDD	918	122	54400	20452		
(AT 250 KHZ)						

REMARKS: ALL DEVICES NONOPERABLE AFTER 12K RAD, DUE TO EXCESSIVE IDD (DYNAMIC).

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4051	8 CHANNEL MUX DEMUX	CMOS	25-29	2630

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD4051BD/XZ		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7719	CO-60	5	V+=5V, TYPICAL APPLICATION CIRCUIT

CUM. DOSE (RADS)	0		12K		50K		160K		350K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS										
VO	5PASS		5PASS		5PASS		5PASS		5PASS	
IL	5PASS		5PASS		5PASS		5PASS		5PASS	
IIN	5PASS		5PASS		5PASS		5PASS		5PASS	
IDD QUIESCENT	5PASS		5PASS		5PASS		5PASS *		5PASS *	
IDD DYNAMIC	5PASS		5PASS		5PASS		5PASS		5PASS	
THI	5PASS		5PASS		5PASS		5PASS		5PASS	
	5PASS		5PASS		5PASS		5PASS		5PASS	

TEST RESULTS: 22 TESTS: \*2 FAILED IDD AND FUNCTIONALLY: INCORRECTLY DECODED CHANNEL TO TURN ON

KS: \*2 FAILED IDD AND FUNCTIONALLY: INCORRECTLY DECODED CHANNEL TO TURN ON

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\*\*\*\*\*  
 GENERIC PART NUMBER: 4052  
 \*\*\*\*\*  
 FUNCTION: ANALOG MUX/DEMUX  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 1-21 2340  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: RCA CORPORATION  
 PART NUMBER: CD4052  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 NONE CO-60 3 UNK.  
 \*\*\*\*\*

CUM. DOSE(RADS): 0  
 \*\*\*\*\*  
 PARAMETERS: 75K 15K 300K 600K  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 DISS1 .272 2.45 .4652 4.4 .7489 7.2 1.090 14. 1.721  
 DISS2 .366 3. .5260 5. .8736 8. 1.224 14. 1.801  
 DVIN(V) 1.81 1.7 .0762 1.65 .0713 1.61 .0663 1.60 .0676  
 DVTP(V) 1.80 1.9 .0302 1.95 .0338 2. .0374 2.1 .0489  
 \*\*\*\*\*

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 4052  
 \*\*\*\*\*  
 FUNCTION: ANALOG MUX/DEMUX  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 1-22 2350  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: RCA CORPORATION  
 PART NUMBER: CD4052  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 NONE CO-60 3 UNK.  
 \*\*\*\*\*

CUM. DOSE(RADS): 0  
 \*\*\*\*\*  
 PARAMETERS: 75K 15K 300K 600K  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 DISS1 .0318 3.2 .6413 4.8 .9168 7.6 1.264 12.5 2.021  
 DISS2 .0402 3.8 .7566 5.4 1.081 8.2 1.395 13. 1.922  
 DVIN 1.80 1.71 .0465 1.7 .0452 1.65 .0427 1.62 .0453  
 DVTP 1.80 1.9 .0346 1.95 .0367 2. .0429 2.1 .0542  
 \*\*\*\*\*

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4066	QUAD BILATERAL SW.	CMOS	1-23	2360

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA CORPORATION	CD4066		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	CO-60	3	UNK.

PARAMETERS	0		75K		15K		300K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DISS1	.197		1.25	.0252	2.8	.0624	5.2	.2804	9.6	.3786
DISS2	.227		1.7	.1411	3.4	.2930	6.2	.3969	11.	.1155
DVTN(V)	1.65		1.55	.0040	1.5	.0067	1.45	.0150	1.4	.0173
DVTP(V)	1.56		1.65	.0232	1.7	.0251	1.75	.0218	1.9	.0208

REMARKS:

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4066	QUAD SWITCH	CMOS	25-32	2570

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD4066BD		AERJET

LDC	RAD. TYPE	PART QTY.	BIAS
7804	CO-60	5	UNK.

PARAMETERS	0		2.5K		10K	
	MEAN	SD	MEAN	SD	MEAN	SD
V0	5PASS		5PASS		5PASS	
IIL	5PASS		5PASS		5PASS	
IL	5PASS		5PASS		5PASS	
IDD QUIESCENT	5PASS		5PASS		5PASS	
IDD DYNAMIC	5PASS		5PASS		5PASS	
TLH	5PASS		5PASS		5PASS	
TLH	5PASS		5PASS		5PASS	

REMARKS: \*5FAIL: MEAN=2.0UA, MAX=3.0UA. \*\*5FAIL: MEAN=3.9UA, MAX=6.0UA.

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\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO.      RECORD  
-----  
4069      HEX INVERTER      CMOS      80      2850

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
RCA      406GUB      MIL-M-38510/174 A2      RCA

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
8095      CO-60      4      10V

\*\*\*\*\*  
CUM. DOSE (RADS):      0      100K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
DVNTH      V      .2000      .04  
DVPTH      V      .4600      .03

\*\*\*\*\*  
REMARKS: LDC = (METAL) EVAPORATION RUN  
\*\*\*\*\*

\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO.      RECORD  
-----  
4070      QUAD XOR      CMOS      25-26      2640

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
FSC      F4070DM      AEROJET

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
7651      CO-60      5      APPLICATION CIRCUIT

\*\*\*\*\*  
CUM. DOSE (RADS):      0      2.5K      10K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
VOH \*\*      5PASS      \*FAIL      \*FAIL  
VOL      5PASS      5PASS      5PASS  
VTHN      5PASS      5PASS      5PASS  
VTHP      5PASS      5PASS      5PASS  
IDD QUIESCENT      5PASS      5FAIL      5FAIL  
IDD DYNAMIC      5PASS      5PASS      5PASS  
IIN      5PASS      \*FAIL      5FAIL  
REMARKS: \*\*IOH, IOL, TLH, TLH PASS ALL DOSES. \*SOME

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4070	QUAD XOR	CMOS	25-25	2660

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	CD4070ED		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7810	CO-60	5	UNK.

CUM. DOSE (RADS): 0 2.5K 10K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>OH</sub> *	SPASS		SPASS		SPASS	
V <sub>OL</sub>	SPASS		5FAIL		5FAIL	
V <sub>THN</sub>	SPASS		SPASS		5FAIL	
V <sub>THP</sub>	SPASS		SPASS		5FAIL	
I <sub>IN</sub>	SPASS		SPASS		5PASS	
I <sub>OH</sub>	SPASS		SPASS		5FAIL	
I <sub>DD QUIESCENT</sub>	SPASS		SPASS		5FAIL	

REMARKS: \*IOL PASSED ALL DOSES.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4070	QUAD EXCLU OR GATE	CMOS	81	2840

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	4070B	MTL-M-38510/172A A2	RCA

LDC	RAD. TYPE	PART QTY.	BIAS
7933	CO-60	11	10V

CUM. DOSE (RADS): 0 100K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD
D V <sub>NTH</sub>			.68	.10		
D V <sub>PTH</sub>			.38	.07		

REMARKS: LDC = INSPECTION LOT NO.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4071	QUAD 2INPUT OR GATE	CMOS	82	2830

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	4071B	NIL-M-38510/171A	RCA

LDC	RAD. TYPE	PART QTY.	BIAS
7946	CD-60	11	10V

CUM. DOSE (RADS):	0				100K			
	PARAMETERS	MEAN	SD		MEAN	SD		
DVNT:H	V				.43	.02		
DVPTH	V				.43	.05		

REMARKS: LDC = INSPECTION LOT NO.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4072	DUAL 4INPUT OR GATE	CMOS	83	2820

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	4072B	MIL-M-3851Q/171A	RCA

LDC	RAD. TYPE	PART QTY.	BIAS
7934	CO-60	11	10V

CUM. DDSE (RADS) :	0			100K		
	MEAN	SD		MEAN	SD	
PARAMETERS						
DVNTH			V	.39	.15	
DVPTH			V	.54	.12	

REMARKS: LDC = INSPECTION LOT NO.

GENERIC PART NUMBER: 4072

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GENERIC PART NUMBER 4073  
FUNCTION TRIPLE 3IN AND GATE  
TECHNOLOGY CMOS  
REF. NO. RECORD 84 2810

MANUFACTURER RCA  
PART NUMBER 4073B  
SPECIFICATION MIL-M-38510/170A A2 RCA  
DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS  
7946 CO-60 10V

CUM. DOSE (RADS): 0 100K  
PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
DVNTH V .34 .21  
DVPTH V .37 .06

REMARKS: LDC = INSPECTION LOT NO.

GENERIC PART NUMBER 4075  
FUNCTION TRIPLE 3IN OR GATE  
TECHNOLOGY CMOS  
REF. NO. RECORD 85 2800

MANUFACTURER RCA  
PART NUMBER CD4075BF/B  
SPECIFICATION MIL-M-38510/171A RCA  
DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS  
8006 CO-60 11 UNK.

CUM. DOSE (RADS): 0 100K  
PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
DVNTH .41 .15  
DVPTH .57 .11

REMARKS: LDC = INSPECTION LOT NO.

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\*\*\*\*\*  
 GENERIC PART NUMBER: 4077  
 \*\*\*\*\*

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 \*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4077	QUAD EXCLU NOR GATE	CMOS	86	2780

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	4077B	MIL-M-3851C/172A A1	RCA

LDC	RAD. TYPE	PART QTY.	BIAS
6595	CO-60	11	10V

CUM. DOSE (RADS): 0 100K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVNTN	V		1.62	.052				
DVPTH	V		.88	.13				

REMARKS: LDC = ER NO.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4077	QUAD EXCLU NOR GATE	CMOS	86	2790

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	4077B	MIL-M-3851C/172A A1	RCA

LDC	RAD. TYPE	PART QTY.	BIAS
8186	CO-60	16	10V

CUM. DOSE (RADS): 0 100K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVNTN	V		.48	.05				
DVPTH	V		.41	.05				

REMARKS: LDC = ER NO.

\*\*\*\*\*  
 GENERIC PART NUMBER: 4077  
 \*\*\*\*\*

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 \*\*\*\*\*

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GENERIC PART NUMBER: 4078  
 FUNCTION: 8-INPUT NOR GATE  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 25-27 2650

MANUFACTURER: RCA  
 PART NUMBER: CD4078BD  
 SPECIFICATION: AEROJET  
 DATA SOURCE: AEROJET

LDC RAD. TYPE PART QTY. BIAS  
 7738 CO-60 5 UNK.

CUM. DOSE (RADS): 0 10K \*\* 40K 130K 250K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 VOH \* 5PASS 5PASS 5PASS 5PASS 5PASS 2FAIL  
 VOL 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 IIN 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 IDD QUIESCENT 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 IDD DYNAMIC 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 IDP 5PASS 5PASS 5PASS 5PASS 5PASS 1FAIL  
 IDN 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 REMARKS: \*VTNH, VTHP, THL, TLH PASS ALL DOSES. \*\*ALL PARS. PASSED 1ST (2.5K) DOSE

GENERIC PART NUMBER: 4081  
 FUNCTION: QUAD 2-INPUT AND  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 1-24 2370

MANUFACTURER: NATIONAL SEMICONDUCT  
 PART NUMBER: CD4081  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL

LDC RAD. TYPE PART QTY. BIAS  
 733 CO-60 5 UNK.

CUM. DOSE (RADS): 0 1K 3K 6K 15K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 DISS1(UA) 00151 00011 00011 00011 00011 00011 00011 00011 00011 00011  
 DISS2(UA) 00134 00011 00011 00011 00011 00011 00011 00011 00011 00011

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4081	QUAD 2IN AND GATE	CMOS	87	2770

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	4081B	MIL-M-38510/170 A2	RCA

LDC	RAD. TYPE	PART QTY.	BIAS
7822	CO-60	24	10V

CUM. DOSE (RADS): 0 100K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVINTH	V		.43	.09				
DVPTH	V		.47	.06				

REMARKS: LDC = ER NO.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4081	GATE	CMOS	55	2890

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
R C A	CD4081B		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	VDD=15V, VSS=GND

CUM. DOSE (RADS): 0 5K 10K 30K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IDD	UA	.010			17.6		717.0	
VTH	V	5.82	5.60	5.10	5.10		FAIL	
VIL	V	4.93	4.77	4.47	4.47		3.610	
IIL	NA	10.0	10.0	10.0	10.0		10.00	
IIL	NA	10.0	10.0	10.0	10.0		10.00	
TPLH	NS	45.2	39.4	39.3	39.3		FAIL	
TPLH	NS	37.1	42.4	40.8	40.8		FAIL	

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4082	DUAL 4IN AND GATE	CMOS	88	2760

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	4082B	MIL-M-38510/170A A2	RCA

LDC	RAD. TYPE	PART QTY.	BIAS
7395	CO-60	11	10V

CUM. DOSE (RADS): 0 100K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVNTN	V		.08	.03				
DVPTH	V		.62	.05				

REMARKS: LDC = ER NO.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4085	2 2WIDE 2IN A/OR IN	CMOS	89	2750

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	4085B	MIL-M-3510/172 A A2	RCA

LDC	RAD. TYPE	PART QTY.	BIAS
7946	CO-60	11	10V

CUM. DOSE (RADS): 0 100K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVNTN	V		.27	.06				
DVPTH	V		.35	.05				

REMARKS: LDC = INSPECTION LOT NO.

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\*\*\*\*\*  
 GENERIC PART NUMBER: 4086  
 \*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4086	EXP 4W 2IN A/OR INV	CMOS	90	2740

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	4086B	MIL-M-38510/172A A2	RCA

LDC	RAD. TYPE	PART QTY.	BIAS
7933	CO-60	11	10V

CUM. DOSE (RADS): 0 100K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVNTN	V		.29	.07				
DVPTH	V		.4	.08				

REMARKS: LDC= INSPECTION LOT NO.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4098	DUAL MONDSTAB MULV1	CMOS	91	2730

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	4098B	M38510/175A A1	RCA

LDC	RAD. TYPE	PART QTY.	BIAS
8017	CO-60	25	10V

CUM. DOSE (RADS): 0 100K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVNTN	V		.19	.08				
DVPTH	V		.28	.29				

REMARKS: LDC IS INSPECTION LOT NO.

\*\*\*\*\*  
 GENERIC PART NUMBER: 4098  
 \*\*\*\*\*

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 \*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4099	8-BIT ADDRESS LATCH	CMOS	1-25	2380

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA CORPORATION	CD4099		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	CO-60	3	UNK.

CUM. DOSE (RADS):	0	75K	15K	300K	600K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD
DISS1	.630		3.2	.4366	5.4	.7286
DISS2	.633		3.5	.3894	5.6	.5965
DVIN(V)	1.59		1.55	.0076	1.51	.0064
DVTP(V)	1.44		1.5	.0716	1.55	.0728
					9.2	1.127
					9.0	.9042
					1.50	.0086
					1.6	.0747
					16.	1.358
					15.	1.150
					1.5	.0076
					1.65	.0793

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4099	8 BIT ADDRESS LATCH	CMOS	92	2720

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RCA	4099B	MIL-M-38510/176A A1	RCA

LDC	RAD. TYPE	PART QTY.	BIAS
8084	CO-60	13	10V

CUM. DOSE (RADS):	0	100K
PARAMETERS	MEAN	SD
DVINTH	.26	.02
DVPTH	.36	.05

REMARKS: LDC= METAL EVAPORATION RUN

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\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
4344      PHASE/FREQ DETECTOR      BIPOLAR      1017      5171  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
MOTOROLA      MC4344L  
\*\*\*\*\*

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----

\*\*\*\*\*  
CUM. DOSE (RADS):      0  
-----  
PARAMETERS      MEAN      SD      100K      200K      500K      1MEG  
-----  
\* E(PH)(4) RAD      -.217      .249      -.182      .265      -.187      .256      -.142      .252      -.130      .250  
E(PH)(5) RAD      -.334      .375      -.322      .389      -.312      .392      -.307      .377      -.256      .374  
I(OLK8) NA      4.62      0.63      3.78      0.41      3.76      0.51      3.55      0.44      3.74      0.45  
I(OLK10) PA      4.56      1.14      5.82      1.05      7.32      1.13      10.52      1.51      12.82      2.72  
I(OB) MA      6.128      1.387      3.165      0.351      2.090      0.215      1.084      0.108      0.688      0.075  
VEH V      2.186      0.066      2.195      0.068      2.201      0.069      2.211      0.069      2.215      0.066  
REMARKS: \*CUM. FROM REC. 5170. (4)@PI). (5)@3(PI)/2.  
\*\*\*\*\*

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\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
4502      STROB HEX INV/BUFF      CMOS      93      2710  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
RCA      4502B      MIL-M-38510/174 A2      RCA  
\*\*\*\*\*

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
7840 CO-60      11      10V  
\*\*\*\*\*

\*\*\*\*\*  
CUM. DOSE (RADS):      0      100K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
DVNTH V      .45      .03  
DVPTH V      .44      .04  
\*\*\*\*\*

\*\*\*\*\*  
REMARKS: LDC= METAL EVAPORATION RUN  
\*\*\*\*\*





GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
451	4 CHANNEL SWITCH	MOS	25-37	2580

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	MM451H		AEROJET

LDC	RAD.	TYPE	PART QTY.	BIAS
7644	CO-60		4	UNK.

CUM. DOSE (RADS) :	0		13.5K		59K		113K		329K **	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS										
VGS(TH) *	4PASS		4FAIL		4FAIL		4FAIL		2FAIL	
VO	4PASS		4PASS		4PASS		4PASS		2PASS	
IGBS	4PASS		4PASS		4PASS		4PASS		2PASS	
IID(OFF)	4PASS		4PASS		4PASS		4PASS		2PASS	
IS(OFF)	4PASS		4PASS		4PASS		4PASS		2PASS	
IIDD DYNAMIC	4PASS		4PASS		4PASS		4PASS		2PASS	
ITHL	4PASS		4PASS		4PASS		4PASS		2PASS	

REMARKS: \*TLH ALSO PASSED AT ALL DOSES \*\*ONLY 2 DEVICES EXPOSED TO THIS.

REMARKS: \*TLH ALSO PASSED AT ALL DOSES \*\*ONLY 2 DEVICES EXPOSED TO THIS.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
451	4-CHANNEL SWITCH	MOS	25-38	2590

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
INTERSIL	MN451HTW		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7643	CO-60	4	UNK.

CUM. DOSE (RADS):		0		2.5K		10K		130K		250K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VGS	***	4PASS		4PASS		*FAIL		*FAIL		4FAIL	
VD		4PASS		4PASS		*FAIL		*FAIL		4FAIL	
IGBS		4PASS		4PASS		4PASS		4PASS		4PASS	
IID(OFF)		4PASS		4PASS		4PASS		4PASS		4PASS	
IIS(OFF)		4PASS		4PASS		4PASS		4PASS		4PASS	
IIDD DYNAMIC		4PASS		4PASS		4PASS		4PASS		4PASS	
VO		4PASS		4PASS		4PASS		4PASS		4PASS	

REMARKS: \*\*\*TLH PASS ALL DOSES. \*(SOME)

REMARKS: \*\*\*THL. TLH PASS ALL DOSES. \* (SOME)

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
452	4XPST SWITCH	PMOS	25-39	2600

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
INTERSIL	MM452FD		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7635	CO-60	4	UNK.

CUM. DOSE (RADS):		0		60K **		120K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VGS(TH) * V	4PASS		-7.1	2FAIL	-8.5	4FAIL		
VO	4PASS		2PASS		4PASS			
IGBS	4PASS		2PASS		4PASS			
ID(OFF)	4PASS		2PASS		4PASS			
IS(OFF)	4PASS		2PASS		4PASS			

REMARKS: \*\*ONLY 2 DEVICES TESTED AT 60K. \*SPEC. MAX VGS(TH)=-3.0V.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
452	4XPST SWITCH	PMOS	25-40	2610

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
	MM452F		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7721	CO-60	4	UNK.

CUM. DOSE (RADS):		0		9.9K		19.8K		30.6K		40.5K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
VGS(TH) V	1.59		1.78		2.00		2.08		2.23		
VO	4PASS		4PASS		4PASS		4PASS		4PASS		
IGBS	4PASS		4PASS		4PASS		4PASS		4PASS		
ID(OFF)	4PASS		4PASS		4PASS		4PASS		4PASS		
IS(OFF)	4PASS		4PASS		4PASS		4PASS		4PASS		

REMARKS: CONTINUED ON RECORD 2611.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
452	4XPST SWITCH	PMOS	25-40	2611

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	MM452F		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7721	CO-60	4	UNK.

CUM.DDOSE(RADS):		0		80.1K		119.7K		198.9K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VGS(TH)				2.50		2.69		3.03	
VO				4PASS		4PASS		4PASS	
IGBS				4PASS		4PASS		4PASS	
ID(OFF)				4PASS		4PASS		4PASS	
IS(OFF)				4PASS		4PASS		4PASS	

REMARKS: CONTINUATION FROM RECORD 2610.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
4602	QUAD OP AMP	BIPOLAR	25-41	2680

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	WA1-4602-2		AEROJET

LDLC	RAD.	TYPE	PART	QTY.	BIAS
*	CO-60		5		UNK.

CUM. DOSE (RADS) :		0		18K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD
VIO	5PASS		** 37			
IB	5PASS					
IIO	5PASS					
IQ	5PASS					
GBW	5PASS					
MHZ	5PASS					
FUNCTIONALITY	5PASS					

REMARKS: \*4:7816R;1:7823R. \*\*5FAIL(SPECMAX=2.5MV). \*\*\*2 FELL FROM 16 TO .327MHZ

GENERIC PART NUMBER: 4602

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\*\*\*\*\*  
 GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO.      RECORD  
 -----  
 4741      QUAD OP AMP      BIPOLAR      25-42      2690  
 -----

\*\*\*\*\*  
 MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
 -----  
 HARRIS      HA1-47412-2           AEROJET  
 -----

\*\*\*\*\*  
 LDC      RAD. TYPE      PART QTY.      BIAS  
 -----  
 7812E      CO-60      5      UNK.  
 -----

CUM. DOSE (RADS):      0      12.5K      42.5K      130K  
 -----  
 PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
 -----  
 VIO      5PASS           5PASS           5PASS           5PASS  
 IB      5PASS           5PASS           5PASS           5PASS  
 IIO      5PASS           5PASS           5PASS           5PASS  
 IQ      5PASS           5PASS           5PASS           5PASS  
 GBW      5PASS           5PASS           5PASS           5PASS  
 -----

\*\*\*\*\*  
 REMARKS: \* SEVERAL FAILED IIO AND IB AT LOW DOSES AND HAD SIGNIFIC. DBW DEGRAD.  
 \*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO.      RECORD  
 -----  
 5001      1K X 1 RAM      CMOS/SOS      1-138      2920  
 -----

\*\*\*\*\*  
 MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
 -----  
 RCA      MWS5001D           JPL  
 -----

\*\*\*\*\*  
 LDC      RAD. TYPE      PART QTY.      BIAS  
 -----  
 7622      CO-60      3      VCC=5V.  
 -----

CUM. DOSE (RADS):      0      300      1K      3K      10K  
 -----  
 PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
 -----  
 ICC(MAX) \* MA      11           54           220           880  
 MARCH      PASS      PASS      PASS      PASS      PASS      FAIL  
 R/W PING PONG      PASS      PASS      PASS      PASS      PASS      FAIL  
 -----

\*\*\*\*\*  
 PARAMETERS  
 MEASURED  
 @ VCC = 5V  
 REMARKS: \* MEAN = WORST-CASE PARAMETER VALUE (NOT AVERAGE).  
 \*\*\*\*\*

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\*\*\*\*\*  
 GENERIC PART NUMBER: 5001  
 \*\*\*\*\*  
 FUNCTION: 1K X 1 RAM  
 TECHNOLOGY: CMOS/SOS  
 REF.NO. RECORD: 1-139 2930  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: RCA  
 PART NUMBER: MWS5501  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 NONE CO-60 4 VCC=10V.  
 \*\*\*\*\*

CUM.DOSE(RADS): 0 300 1K 3K 7K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 ICC(MAX) \* MA 0.115 1.2 4.2 10 15  
 MARCH PASS \*\* PASS FAIL  
 GALPAT PASS \*\* PASS FAIL  
 \*\*\*\*\*

PARAMETERS MEASURED  
 @ VCC = 10V  
 REMARKS: \* MEAN = WORST-CASE VALUE (NOT AVG). \*\*NOT MEASURED AT THIS DOSE  
 \*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER: 504  
 \*\*\*\*\*  
 FUNCTION: OP-AMP  
 TECHNOLOGY: BIPOLAR  
 REF.NO. RECORD: 1-2 3080  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: ANALOG DEVICES, INC.  
 PART NUMBER: AD504  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 7834L 2.5MEV EL 5 UNK.  
 \*\*\*\*\*

CUM.DOSE(RADS): 0 30K 75K 150K 600K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 DVOS .0045 .0027 .0025 .0117 .0098 .0233 .0293 .0776  
 DIOS .2000 .4338 .8000 1.884 2.100 4.694 7.998 17.25  
 DIB 16. 7.187 40. 7.857 66. 17.54 178. 54.55  
 +GAIN 136. 5.0 134. 5.209 130.9 2.234 130.2 3.662 123.8 1.407  
 -GAIN 142. 5.0 138.1 3.914 137.2 1.979 138.2 6.075 131.8 1.949  
 \*\*\*\*\*

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
508	ANALOG SWITCH	CMOS	101-2	3040

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HI-508A		LITTON

LDC	RAD.	TYPE	PART QTY.	BIAS
UNK.	CO-60	5		V++15V, V--15V, PINS 1,2,15,16 TO +5V THRU 10K

CUM. DOSE(RADS): 0 3.9K 8K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
LEAK/IN+5V PA	17.00	5.400	22.00	15.00	24.00	20.00		
LEAK/IN-5V PA	13.00	2.400	17.00	18.00	11.00	13.00		
LEAK/O +5V PA	59.00	33.00	41.00	23.00	35.00	40.00		
LEAK/O -5V PA	78.00	71.00	13.00	12.00	43.00	28.00		
R(ON) OHMS	1157.	29.89	1149.	26.14	1108.	39.00		

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
5101	256X4 RAM	CMOS	20	3680

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SSS	SCM5101C-1		MOTOROLA

LDC	RAD.	TYPE	PART QTY.	BIAS
7942	CO-60	3		VCC=5V

CUM. DOSE(RADS): 0 1.5K 3K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VTN	1.168	.0443	1.013	.0907	.8518	.1673		
VTP	1.168	.1135	1.231	.1096	1.292	.1059		
ICC	00000	00000	23.93	5.565	555.3	119.0		

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
5101	256X4 RAM	CMOS	19	3690

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MOTOROLA	MCN5101C80		MOTOROLA

LDC	RAD. TYPE	PART QTY.	BIAS
8026	CD-60	2	VCC=5V

CUM. DOSE (RADS): 0 1.5K 3K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VTN	V	.5751	.0313	.4387	.0775	.3123	.1358	
VTP	V	1.068	.1804	1.124	.1803	1.174	.1771	
ICC	UA	.0700	.0141	.5150	.2051	11.65	7.425	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
5211	12-BIT A/D CONVRTR.	CMOS	1-134	2900

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MNC	MN5211		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
8102	2.5MEV EL	2	VCC=5V, VDD=12V, VEE=-12V.

CUM. DOSE (RADS): 0 75K 150K 300K 600K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
OFFSET (MAX) MV	2.01		2.16		4.17		10.36	
OFFERR LSB	0.824		0.887		1.710		6.90	
NONLIN LSB	0.501		0.542		0.560		0.736	
IOH (MIN) MA	4.80		4.70		4.68		4.65	
IOL (MIN) MA	17.69		14.42		13.27		12.17	

--PARAMETERS CONT. ON REC. 2901.  
 REMARKS: MEAN = WORST-CASE PARAMETER VALUE (NOT AVG.), BIAS SAME AS ABOVE.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO. RECORD
5211	12-BIT A/D CONVRTR.	CMOS	1-134 2901

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MNC	MN5211		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS):		0		75K		150K		300K		600K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
I IH (MAX)	NA	795		804		793		778		765	
I IL (MAX)	UA	332		322		321		320		319	
DV REF (MAX)	MV	---		3.0		3.5		1.5		5.0	
I CC (MAX)	MA	21.9		21.5		21.4		21.3		21.1	
I DD (MAX)	MA	13.95		13.80		13.75		13.80		13.80	

--PARAMETERS CONT. ON REC. 2902.  
 REMARKS: CONTINUATION FROM RECORD 2900.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO. RECORD
5211	12-BIT A/D CONVRTR.	CMOS	1-134 2902

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MNC	MN5211		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS):		0		75K		150K		300K		600K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IEE(MAX)	MA	8.60		8.50		8.50		8.50		8.45	
+FSACC(MIN)	V	4.99		4.99		4.99		5.00		5.00	
-FSACC(MIN)	V	4.99		4.99		4.99		4.98		4.96	
VOL (MAX)	MV	109		113		114		115		116	
VOL(MIN)	V	4.02		4.03		4.04		4.03		4.04	

-- END OF  
 PARAMETERS  
 REMARKS: CONTINUATION FROM RECORD 2901.

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\*\*\*\*\*  
 GENERIC PART NUMBER 5214  
 FUNCTION TECHNOLOGY REF. NO. RECORD  
 12-BIT A/D CONVRTR. CMOS 1-135 2910

\*\*\*\*\*  
 MANUFACTURER PART NUMBER SPECIFICATION DATA SOURCE  
 MNC MN5214 JPL

LDC RAD. TYPE PART QTY. BIAS  
 802 2.5MEV EL 2 VCC=5V, VDD=15V, VEE=-15V.

CUM. DOSE(RADS): 0 30K 75K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 ITH(MAX) \* NA 898 FAIL  
 IIL(MAX) \* UA 304. FAIL  
 IYREF(MAX) \* --- FAIL  
 ICC(MAX) \* MA 20.4 FAIL  
 IDD(MAX) \* MA 17.95 FAIL  
 IEE(MAX) \* MA 4.25 FAIL  
 --PARAMETERS CONT. ON REC. 2911.  
 REMARKS: \* MEAN = WORST-CASE (NOT AVG.) @ VCC=5V, VDD=15V, VEE=-15V.

\*\*\*\*\*  
 GENERIC PART NUMBER 5216  
 FUNCTION TECHNOLOGY REF. NO. RECORD  
 12-BIT A/D CONVRTR. CMOS 1-136 2890

\*\*\*\*\*  
 MANUFACTURER PART NUMBER SPECIFICATION DATA SOURCE  
 MNC MN5216 JPL

LDC RAD. TYPE PART QTY. BIAS  
 \*\* 2.5MEV EL 3 VCC=5V, VDD=15V, VEE=-15V.

CUM. DOSE(RADS): 0 75K 150K 300K 600K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 VOH(MIN) V 3.49 3.50 4.29 4.08 4.07  
 VOL(MAX) MV 97.5 103 106 109  
 IOH(MIN) MA 4.49 4.35 4.91 4.86  
 IOL(MIN) MA 15.24 11.25 9.73 8.19 6.84  
 ITH(MAX) UA 0.818 0.805 0.781 0.774 0.737  
 IIL(MAX) UA 236 228 221 220  
 --PARAMETERS CONT. ON REC. 2891.  
 REMARKS: \*\*7909(1),7910(2). MEAN = WORST-CASE (NOT .3.). BIAS SAME AS ABOVE.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
5216	12-BIT A/D CONVRTR.	CMDS	1-136 2891

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MNC	MN5216		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE(RADS): 0

PARAMETERS	75K		150K		300K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
DVREF(MAX) MV	---		7.99		9.99		16.00	
ICC(MAX) MA	16.45		15.95		14.25		14.11	
IDD(MAX) MA	12.40		12.85		19.00		21.00	
IEE(MAX) MA	11.92		11.95		11.60		12.15	
OFFSET(MAX) MV	2.13		13.12		FAIL		FAIL	
OFFERR					FAIL		FAIL	

REMARKS: CONTINUATION FROM RECORD 2890. PARAMETERS CONTINUED ON RECORD 2892.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
5216	12-BIT A/D CONVRTR.	CMDS	1-136 2892

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MNC	MN5216		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE(RADS): 0

PARAMETERS	75K		150K		300K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ADL OFF (MAX) MV	2.74		11.90		13.73		28.3	
ADL ERR (MAX) LSB	1.21		4.87		5.62		11.62	
NONLIN (MAX) LSB	0.919		0.721		FAIL		FAIL	

REMARKS: CONTINUATION FROM RECORD 2891. \*END OF PARAMETERS.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
532	MULTIPLIER/DIVIDER	BIPOLAR	1044	5460
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
ANALOG DEVICES	ADS32		TRW	

LDC	RAD.	TYPE	PART	QTY.	BIAS
7736M	CO-60		5		V-(PIN2) = +15V; V-(PIN5) = -15V; PINS 7, 8, 9, 10 @ GND*

CUM.DDOSE(RADS):	PARAMETERS	0		100K		300K		500K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
	V0(1V)	136.4	1.727	135.4	1.557	136.3	1.681	135.1	1.171
	V0(2V)	543.5	4.779	541.9	4.669	544.5	4.594	541.3	4.212
	V0(3V)	1221.	9.985	1218.	9.783	1223.	9.434	1216.	9.236
	V0(4V)	2170.	16.80	2165.	16.88	2174.	16.27	2163.	16.54
	V0(5V)	3387.	25.79	3377.	26.06	3391.	25.39	3373.	25.97
	IS	2.640	0.055	2.560	0.055	2.560	0.055	2.400	0
	V0S	25.86	20.85	30.44	21.41	35.96	21.86	40.08	23.03

REMARKS: \*: PINS 1,3,4,6 TO GND VIA 1K.

REMARKS: \*: PINS 1,3,4,6 TO GND VIA 1K.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. No.	RECORD
54C/74	HEX/QUAD D-FLIP-FLOP	TTL	24-42	3170
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
NATIONAL	54C174	COMMERCIAL	ROCKWELL	

LDC	RAD. TYPE	PART QTY.	BIAS
32314	CO-60	10	VDD=CLR=D4=D5=D6=CK=5V, REST TIED TO GND

CUM. DOSE (RADS) :		0			10K			20K		
PARAMETERS		MEAN	SD		MEAN	SD		MEAN	SD	
D	ICC				235.4	117.6		2800	349.6	
D	VOL				.0367	.0102		1.128	1.239	
D	VOH				.0578	.0130		.8973	1.231	

REMARKS: LDC=LOT NO

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\*\*\*\*\*  
 GENERIC PART NUMBER: 54C200  
 \*\*\*\*\*

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 \*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54C200	256X4 RAM	CMOS	1-128	2960

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	MM54C200		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	CO-60	3	VCC=104.

CUM. DOSE (RADS): 0 300 1K 3K 10K \*\*

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ICC(MAX) * NA	1.2		3.4		12.0		38		84	
MARCH	PASS		PASS		PASS		PASS		PASS	
R/W PING PONG	PASS		PASS		PASS		PASS		PASS	

PARAMETERS MEASURED  
 @ VCC = 10V

REMARKS: \* MEAN = WORST-CASE (NOT AVG). \*\*DOSES CONTINUED ON RECORD 2961.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54C200	256X4 RAM	CMOS	1-128	2961

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	MM54C200		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0 20K 30K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ICC(MAX) NA	1.2		125		145			
MARCH	PASS		PASS		PASS			
R/W PING PONG	PASS		PASS		PASS			

REMARKS: DOSES CONTINUED FROM RECORD 2960.

\*\*\*\*\*  
 GENERIC PART NUMBER: 54C200  
 \*\*\*\*\*

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 \*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54C906	HFX INVERT BUFFER	CMOS	2	3700

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL SEMI.	MM54C906W		MOTOROLA

LDC	RAD. TYPE	PART QTY.	BIAS
7843	CO-60	3	VCC1=5V, VCC2=10V

CUM.DOSE(RADS): 0

PARAMETERS	0		4K		1K	
	MEAN	SD	MEAN	SD	MEAN	SD
VTN	1.527	.0421	1.342	.0419	FAILE	FAILE
VTP	-1.82	.0642	-1.89	.0803	-2.00	.1160
10-V02	0.000	0.000	0.065	.0070	.2317	.2087
10-V04	0.000	0.000	0.055	.0062	0.222	.2011

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54C920	256X4 RAM	CMOS	1-130	2980

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	MM54C920		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
MLO,	CO-60	3	VCC=5V.

CUM.DOSE(RADS): 0

PARAMETERS	0		300		1.0K		3.0K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ICC(MAX) * UA	.0072		.0091		.132		.5900	
MARCH	PASS		PASS		PASS		FAIL	
R/W PING PONG	PASS		PASS		PASS		FAIL	

REMARKS: \* MEAN = WORST-CASE PARAMETER VALUE (NOT AVG.) @ VCC=5V.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
540929	1KX1 RAM	CMOS	1-131	2970

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	MM54C929		JPL

DC	RAD. TYPE	PART QTY.	BIAS
NONE	CO-60	4	VCC=5V.

CUM. DOSE (RADS):									
O		300		1K		3K			
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
CC(MAX) * UA	0.056								
MARCH	PASS				26		7500		
MALPAT	PASS				**		FAIL		
					**		FAIL		
					**		FAIL		

REMARKS: \* MEAN=WORST-CASE (NOT AVG.) @VCC=5V. \*\*NOT MEASURED @ THIS DOSE

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54C929	1024X1 RAM	CMOS	1-132	2990

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	MM54C929		JPL

LDLC	RAD.	TYPE	PART QTY.	BIAS
NONE	CO-60		4	V+ = 15V.

CUM. DOSE (RADS) :	0		.3K		1.0K		3.0K		7.0K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS										
ICC (MAX) UA	2.5				5		25		4800	
MARCH	PASS		*		*		*		FAIL	
GALPAT	PASS		*		*		*		FAIL	

REMARKS: MEAN = WORST-CASE PARAMETER VALUE (NOT AVERAGE). \*NOT MEASURED.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS00	GATE	TTC	10	3260

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS00		MOTOROLA

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	1	VCC=5V, PINS 12,13 AT 3.4V.

PARAMETERS	0		100K		650K		2.7MEG		
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
IIL *	UA	172.9	9.192	171.8	1.061	170.2	.4950	171.0	0.0
IIH **	UA	.15	.00	.14	.06	.15	.00	.07	.00
ICCH	UA	755		750		742		700	
ICCL	MA	2.83		2.80		2.78		2.70	
VOL	MV	295.8	2.217	295.8	2.217	302.5	2.082	301.8	2.217
VOH	V	3.058	.0029	3.060	0.000	3.050	0.000	3.020	0.000

REMARKS: \*AVG. OF IILA & IILB. \*\*AVG. OF IIHA & IIHB.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS00	QUAD NAND GATE	TTL	10	3270

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS00		MOTOROLA

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	1	VCC=5V, PINS 12,13 AT 3.4V

PARAMETERS	0		300K		2MEG		
	MEAN	SD	MEAN	SD	MEAN	SD	
IIL	UA	207.5	.7071	205.8	.3536	202.5	.7071
IIH	UA	.20	.00	.20	.00	.075	.0354
VOL	MV	269.3	6.397	274.0	6.055	281.0	7.071
VOH	V	3.069	.0025	3.060	0.000	3.030	0.000
ICCH	UA	911.0	0.0	904.0	0.0	900.0	0.0
ICCL	UA	3.33	0.00	3.29	0.00	3.20	0.00

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS00	QUAD 2-INPUT NAND	TTL	1101	5810

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS00J		MARTIN

LDLC	RAD. TYPE	PART QTY.	BIAS
7836	CO-60**	6	VCC=+5V.

CUM. DOSE (RADS):		0		50K		100K		500K		1MEG	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
FUNCTIONALITY		6PASS		6PASS		6PASS		6PASS		6PASS	
TPPLH *	NS	3.083	.3997	2.833	.3436	2.771	.7635	2.979	.3055	3.104	.3221
TTPLH ***	NS	5.083	.4930	5.292	.4769	5.438	.5065	5.563	.5461	5.646	.5099

BOTH MEAS.  
 @ VENABLE  
 = 1.3V.

REMARKS: \*\*AND LINAC. SPECS: TYP(\*)=9NS: TYP(\*\*)=10NS: MAX(\*&amp;\*\*\*\*)=15NS.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
541S02	QUAD 2-INPUT NOR	TTL	73	3720

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SIGNETICS	SIN54LS02	909958	HUGHES

LDC	RAD. TYPE	PART QTY.	BIAS
LINK.	CO-60	5	VCC=5.5V

CUM. DOSE (RADS):		0		3MEG		6MEG	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD
IIIL	UA	108.4	6.580	145.4	2.608	142.8	2.950

REMARKS:

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GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
54LS03      QUAD 2 INPUT NAND      LSTTL      25-55      3450

MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
NSC      DM54LS03J           AEROJET

LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
7607      CO-60      5      5V SUPPLY, TYPICAL-APPLICATION CIRCUIT

CUM. DOSE (RADS):      0      13.5K      58.5K      112.5K      328.5K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS	
IIH	5PASS		5PASS		5PASS		5PASS	
IIL	5PASS		5PASS		5PASS		5PASS	
ICCH	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICCL WAS ALSO MEASURED AND WITHIN SPEC AT ALL DOSES.

\*\*\*\*\*

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GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
54LS03      QUAD 2 INPUT NAND      LSTTL      25-56      3460

MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
TI      SN54LS03J           AEROJET

LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
7627      CO-60      5      UNK.

CUM. DOSE (RADS):      0      310K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS	
IIH	5PASS		5PASS		5PASS		5PASS	
IIL	5PASS		5PASS		5PASS		5PASS	
ICCH	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICCL WAS ALSO MEASURED AND MET SPEC AT ALL DOSES

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS04	NAND GATE/INVERTER	LSTTL	77	3760

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SIGNETICS	SN54LS04	911904	HUGHES

LDC	RAD. TYPE	PART QTY.	BIAS
INK.	CO-60	5	VCC=5.5V, ALL OUTPUTS LOW

CUM. DOSE (RADS): 0

PARAMETERS	0		1MEG		3MEG		6MEG	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ICCL	MA	4.620	4.380	4.280	4.100			
VOL	V	.3051	.3280	.3200	.3240			
VOH	V	3.074	3.054	3.056	3.057			
VIL	V	1.000	1.000	1.013	1.013			
VIH	V	1.185	1.230	1.360	1.325			
IIL	UA	142.0	158.5	158.0	148.0			
IOS	UA	28.30	27.95	28.10	27.85			

REMARKS: \*PARAMETERS CONTINUED ON RECORD 3761.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS04	NAND GATE/INVERTER	LSTTL	77	3761

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SIGNETICS	SN54LS04		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0

PARAMETERS	0		60K		1MEG		3MEG		6MEG		
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
TPHL *	NS	11.0	2.0	12.8	1.0	12.6	3.0	13.0	2.0	13.9	1.0
TPLH *	NS	11.2	1.0	11.0	0.0	12.0	3.0	12.0	0.0	12.0	0.0

REMARKS: PARAMETERS CONTINUED FROM RECORD 3760. SD=RANGE OF VALUES (NOT S.D.).

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\*\*\*\*\*  
 GENERIC PART NUMBER: 54LS05  
 \*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS05	HEX INVERTER	LSTTL	25-59	3490

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	DM54LS05J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7705	CO-60	5	+5V SUPPLY TYPICAL-APPLICATION CIRCUIT

PARAMETERS	0		45K		99K		315K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS		5PASS	
V0H	5PASS		5PASS		5PASS		5PASS	
V0L	5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS	
IIH	5PASS		5PASS		5PASS		5PASS	
IIL	5PASS		5PASS		5PASS		5PASS	
ICCH	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICCL ALSO PASSED AT ALL DOSES.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS05	HEX INVERTER	LSTTL	25-60	3500

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS05J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7405	CO-60	5	UNK.

PARAMETERS	0		310K	
	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS	
V0H	5PASS		5PASS	
V0L	5PASS		5PASS	
II	5PASS		5PASS	
IIH	5PASS		5PASS	
IIL	5PASS		5PASS	
ICCH	5PASS		5PASS	

REMARKS: \*ICCL WAS ALSO MEASURED AND MET SPEC AT ALL DOSES.

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\*\*\*\*\*  
 GENERIC PART NUMBER: 54LS05  
 \*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
54LS08	QUAD 2 INPUT AND	LSTTL	25-62 3510

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS08J		AEROJET

LDC RAD. TYPE PART QTY. BIAS

7520 CO-60 5 UNK.

CUM. DOSE (RADS): 0 350K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS		5PASS	
V0H	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS	
I1H	5PASS		5PASS		5PASS		5PASS	
I1L	5PASS		5PASS		5PASS		5PASS	
IOS	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICCH, ICCL, THL, TLH ALSO PASSED.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
54LS10	TRIPLE 3 INPUT NAND	LSTTL	25-63 3520

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS10JA		AEROJET

LDC RAD. TYPE PART QTY. BIAS

7626 CO-60 5 UNK.

CUM. DOSE (RADS): 0 350K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS		5PASS	
V0H	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS	
I1H	5PASS		5PASS		5PASS		5PASS	
I1L	5PASS		5PASS		5PASS		5PASS	
IOS	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICCH, ICCL, THL, TLH WERE ALSO MEASURED AND MET SPEC AT ALL DOSES.

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\*\*\*\*\*  
 GENERIC PART NUMBER: 54LS109  
 FUNCTION: DUAL JK FF  
 TECHNOLOGY: LSTTL  
 REF. NO. RECORD: 25-75 3630

\*\*\*\*\*  
 MANUFACTURER: TI  
 PART NUMBER: SN54LS109J  
 SPECIFICATION: AEROJET  
 DATA SOURCE: AEROJET

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 7702 CO-60 5 UNK.

CUM. DOSE (RADS): 0  
 10K 40K 130K 250K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 FUNCTIONALITY 5PASS 5PASS 5PASS 5PASS  
 VIK \* 5PASS 5PASS 5PASS 5PASS  
 VOH 5PASS 5PASS 5PASS 5PASS  
 VOL 5PASS 5PASS 5PASS 5PASS  
 ICC QUIESCENT 5PASS 5PASS 5PASS 5PASS  
 ICC DYNAMIC 5PASS 5PASS 5PASS 5PASS  
 IOS 5PASS 5PASS 5PASS 5PASS  
 REMARKS: \*IOS, II, IIH, IIL, THL, TLH PASS ALL DOSES. \*\*2 PARTS FAILED TOGGLE TEST.

\*\*\*\*\*  
 GENERIC PART NUMBER: 54LS138  
 FUNCTION: 3 TO 8 LINE DEMUX  
 TECHNOLOGY: LSTTL  
 REF. NO. RECORD: 25-76 3340

\*\*\*\*\*  
 MANUFACTURER: NSC  
 PART NUMBER: DM54LS138J  
 SPECIFICATION: AEROJET  
 DATA SOURCE: AEROJET

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 7644 CO-60 5 UNK.

CUM. DOSE (RADS): 0  
 13.5K 58.5K 112.5K 328.5K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 VIH \* 5PASS 5PASS 5PASS 5PASS  
 VOH 5PASS 5PASS 5PASS 5PASS  
 VOL 5PASS 5PASS 5PASS 5PASS  
 II 5PASS 5PASS 5PASS 5PASS  
 IIH 5PASS 5PASS 5PASS 5PASS  
 IIL 5PASS 5PASS 5PASS 5PASS  
 IOS 5PASS 5PASS 5PASS 5PASS  
 REMARKS: \* ICC WAS ALSO MEASURED AND MET SPEC AT ALL DOSES

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS138	3 TO 8 LINE DEMUX	LSTTL	25-77	3350

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS138J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7530	CO-60	5	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	19K		56K		140K		250K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS		5PASS	
VOH	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS	
IIH	5PASS		5PASS		5PASS		5PASS	
IIL	5PASS		5PASS		5PASS		5PASS	
IOS	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICC ALSO MEASURED; 1 DEV ABOVE SPEC BY 1MA BEFORE AND AFTER IRRAD.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS158	QUAD 2 TO 1 MUX	LSTTL	25-78	3360

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS158J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7749	CO-60	5	+5V, OPERATING CIRCUIT

CUM. DOSE (RADS): 0

PARAMETERS	13.5K		58.5K		112.5K		329K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS		5PASS	
VOH	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS	
IIH	5PASS		5PASS		5PASS		5PASS	
IIL	5PASS		5PASS		5PASS		5PASS	
IOS	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICC WAS ALSO MEASURED AND WAS WITHIN SPEC AT ALL DOSES.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS161	4 BIT BINARY COUNT	LSTTL	25-79	3240

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	DW54LS161J		AEROJET

LLDC	RAD. TYPE	PART QTY.	BIAS
7724	CO-60	5	+5V, OPERATING CIRCUIT, 500-KHZ SQUARE-WAVE CLOCK

CUM. DOSE (RADS) :	0		13.5K		59K		113K		329K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS		5PASS		5PASS	
VO	5PASS		5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS		5PASS	
IIIH	5PASS		5PASS		5PASS		5PASS		5PASS	
IIIL	5PASS		5PASS		5PASS		5PASS		5PASS	
IOS	5PASS		5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICCH AND ICCL ALSO PASSED AT ALL DOSES

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS161	4 BIT BINARY COUNT	LSTTL	25-80	3250

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS161J		AEROJET

LDC	RAD.	TYPE	PART	QTY.	BIAS
7711	CO-60		5		UNK.

CUM. DOSE (RADS) :		0		19K		56K		140K		250K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *		5PASS		5PASS		5PASS		5PASS		5PASS	
VO		5PASS		5PASS		5PASS		5PASS		5PASS	
II		5PASS		5PASS		5PASS		5PASS		5PASS	
IIH		5PASS		5PASS		5PASS		5PASS		5PASS	
IIL		5PASS		5PASS		5PASS		5PASS		5PASS	
IOS		5PASS		5PASS		5PASS		5PASS		5PASS	
ICCH		5PASS		5PASS		5PASS		5PASS		5PASS	

ICCH 3PASS 3PASS  
REMARKS: \*ICCL ALSO PASSED ALL DOSES.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO.	RECORD
54LS174	HEX D FLIPFLOP	LSTTL	25-81	3640

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS174J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7636	CO-60	5	UNK.

CUM.DOSE(RADS): 0 56K 140K 450K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS		5PASS	
VOH	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS	
IIH	5PASS		5PASS		5PASS		5PASS	
IIL	5PASS		5PASS		5PASS		5PASS	
ICC	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*IOS ALSO MEASURED: MOST ABOVE SPEC BEFORE IRRAD, UNAFFECTED BY IRRAD.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF.NO.	RECORD
54LS175	QUAD D FLIP FLOP	LSTTL	25-82	3650

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	DM54LS175J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7722	CO-60	5	UNK.

CUM.DOSE(RADS): 0 13K 58K 112K 326K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS		5PASS	
VOH	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS	
IIH	5PASS		5PASS		5PASS		5PASS	
IIL	5PASS		5PASS		5PASS		5PASS	
IOS	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICCL WAS ALSO MEASURED AND MET SPEC AT ALL DOSES

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS175	QUAD D FLIPFLOP	LSTTL	25-83	3660

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS175J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7637	CO-60	5	UNK.

CUM. DOSE (RADS): 0 56K 140K 450K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>IK</sub> *	5PASS		5PASS		5PASS		5PASS	
V <sub>OH</sub>	5PASS		5PASS		5PASS		5PASS	
V <sub>OL</sub>	5PASS		5PASS		5PASS		5PASS	
I <sub>I</sub>	5PASS		5PASS		5PASS		5PASS	
I <sub>IH</sub>	5PASS		5PASS		5PASS		5PASS	
I <sub>IL</sub>	5PASS		5PASS		5PASS		5PASS	
I <sub>OS</sub>	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICCL WAS ALSO MEASURED AND MET SPEC AT ALL DOSES

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS20	NAND GATE/INVERTER	LSTTL	78	3750

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	SN54LS20	911933	HUGHES

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	VCC=5.5V, ALL OUTPUTS LOW

CUM. DOSE (RADS): 0 1MEG 3MEG 6MEG

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>OH</sub>	3.100		3.100		3.095		3.095	
V <sub>OL</sub>	.2800		.2890		.2910		.2910	
V <sub>IH</sub>	1.195		1.185		1.197		1.197	
V <sub>IL</sub>	.9650		.9550		.9620		.9620	
ICCL	1.635		1.579		1.565		1.565	
I <sub>OS</sub>	80.00		77.00		76.50		76.50	
I <sub>LL</sub>	195.5		193.0		191.5		191.5	

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS21	DUAL 4 INPUT AND	LSTTL	25-67	3530

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS21J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7429	CO-60	5	UNK.

CUM. DOSE (RADS):		0		350K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN
V <sub>IK</sub> *	5PASS		5PASS		
V <sub>OH</sub>	5PASS		5PASS		
V <sub>OL</sub>	5PASS		5PASS		
I <sub>I</sub>	5PASS		5PASS		
I <sub>IH</sub>	5PASS		5PASS		
I <sub>IL</sub>	5PASS		5PASS		
I <sub>OS</sub>	5PASS		5PASS		

REMARKS: \*ICCH, ICCL, THL, TLH WERE ALSO MEASURED AND MET SPEC AT ALL DOSES.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS244	OCTAL BUFFER/DRIVER	TTL	1062	5640

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS244		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7836	CO-60 + N*	10	VCC=+5V.

CUM. DOSE (RADS):		0		*N-200K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN
V <sub>OL3</sub>	MV	232.5	8.22	236.4	9.23
V <sub>OL5</sub>	MV	229.2	7.57	233.2	8.44
V <sub>OL7</sub>	MV	228.8	8.13	232.1	9.02
V <sub>OL9</sub>	MV	224.4	18.04	229.3	18.67
V <sub>OL12</sub>	MV	235.5	7.20	238.7	7.65
V <sub>OL14</sub>	MV	229.9	6.64	233.8	7.27

REMARKS: \*NEUTRON RAD. = 6.28E11 N/SQCM. \*\*CONTINUED ON RECORD 5641.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS244	OCTAL BUFFER/DRIVER	TTL	1062	5641
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
I	SN54LS244			

LDC	RAD.	TYPE	PART	QTY.	BIAS

CUM. DOSE (RADS) :		0		N+200K	
		MEAN	SD	MEAN	SD
PARAMETERS					
VOL16	MV	239.2	14.51	238.4	7.86
VOL18	MV	234.6	6.45	238.2	6.63

REMARKS: CONTINUATION OF RECORD 5640.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS244	OCTAL BUFFER/DRIVER	TTL	1071	5730
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
TI	SN54LS244		TRW	

LDC	RAD. TYPE	PART QTY.	BIAS
**	CO-60 + N*	10	VCC=+5V.

CUM. DOSE (RADS) :		0		*N+100K		*N+300K		*N+500K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
II	*** PA	3291.	9100.	5548.	10718	5704.	10279	7277.	11859
IOZH	*** NA	350.1	708.4	353.7	708.5	313.8	721.0	356.3	708.7
IOZL	*** NA	80.49	188.8	81.30	189.0	78.35	189.0	78.80	189.0
V0H	*** MV	2527.	91.71	2532.	92.47	2539.	92.43	2602.	92.43
V0L	*** MV	324.0	26.75	322.3	27.90	323.9	28.04	324.0	27.86
IO5	*** MA	76.93	8.820	78.37	9.039	78.82	8.983	78.72	9.401

REMARKS: \*\*7714,7806,7923. \*NEUTRON RAD.=6.E11 N/SQCM. \*\*\*AVERAGE OVER 8 PINS.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS266	QUAD 2-INPUT X-NOR	LSTTL	25-84	3570

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS266J		AEROGUET

LDC	RAD.	TYPE	PART QTY.	BIAS
7421	CO-60	5	UNK.	

CUM. DOSE (RAD/S)	0		56K		140K		450K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS								
VIK	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS	
IIH	5PASS		5PASS		5PASS		5PASS	
IIIL	5PASS		5PASS		5PASS		5PASS	
IOH	5PASS		5PASS		5PASS		5PASS	
ICC	5PASS		5PASS		5PASS		5PASS	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS27	TRIPLE 3 INPUT NOR	LSTTL	25-68	3540

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS27J		AEROJET

LDLC	RAD. TYPE	PART QTY.	BIAS
7637	CO-60	5	UNK.

CUM. DOSE (RADS)	0		56K		140K		450K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS	---	---	---	---	---	---	---	---
VIK *	5PASS		5PASS		5PASS		5PASS	
VOH	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS	
IIH	5PASS		5PASS		5PASS		5PASS	
IIIL	5PASS		5PASS		5PASS		5PASS	
IIOS	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICCH AND ICCL WERE ALSO MEASURED AND MET SPEC AT ALL DOSES.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS279	QUAD SR LATCH	LSTTL	25-85	3290

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS279J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7752	CO-60	5	+5V OPERATING CIRCUIT

PARAMETERS	0		13.5K		58.5K		112.5K		329K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS		5PASS		5PASS	
VOH	5PASS		5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS		5PASS	
IIH	5PASS		5PASS		5PASS		5PASS		5PASS	
IIIL	5PASS		5PASS		5PASS		5PASS		5PASS	
IOS	5PASS		5PASS		5PASS		5PASS		5PASS	

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS30	8 INPUT NAND	LSTTL	25-69	3550

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS30J		AEROJET

LDC	RAD.	TYPE	PART	QTY.	BIAS
7408	C0-60		5		UNK.

CUM. DOSE (RADS) :	0				350K			
	PARAMETERS	MEAN	SD		MEAN	SD	MEAN	SD
VIK *	5PASS				5PASS			
VOH	5PASS				5PASS			
VOL	5PASS				5PASS			
II	5PASS				5PASS			
IIH	5PASS				5PASS			
IIIL	5PASS				5PASS			
IOS	5PASS				5PASS			

[illegible]

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS324	VCO	LSTTL	25-86	3300

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS324J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7612	CO-60	5	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	19K		56K		140K		250K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS		5PASS	
VOH	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS	
IIH	5PASS		5PASS		5PASS		5PASS	
IIL	5PASS		5PASS		5PASS		5PASS	
IOS	5PASS		5PASS		5PASS		5PASS	

REMARKS: \* ICC WAS ALSO MEASURED AND MET SPEC AT ALL DOSES

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS37	QUAD 2-INPUT NAND	LSTTL	25-71	3560

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS37J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7720	CO-60	5	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	56K		140K		450K	
	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS	
VOH	5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS	
IIH	5PASS		5PASS		5PASS	
IIL	5PASS		5PASS		5PASS	
IOS	5PASS		5PASS		5PASS	

REMARKS: \* ICCH, ICCL WERE ALSO MEASURED AND MET SPEC AT ALL DOSES

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
541S393	DUAL 4BIT COUNTER	LSTTL	25-87	3310

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FSC	54LS393J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7735	CO-60	5	UNK.

CUM. DOSE (RADS):		0		19K		56K		140K		250K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *		5PASS		5PASS		5PASS		5PASS		5PASS	
VOH		5PASS		5PASS		5PASS		5PASS		5PASS	
VOL		5PASS		5PASS		5PASS		5PASS		5PASS	
II		5PASS		5PASS		5PASS		5PASS		5PASS	
IIH		5PASS		5PASS		5PASS		5PASS		5PASS	
IIL		5PASS		5PASS		5PASS		5PASS		5PASS	
IOS		5PASS		5PASS		5PASS		5PASS		5PASS	

REMARKS: \*TCC WAS ALSO MEASURED AND MET SPEC AT ALL DOSES.

REMARKS: \*ICC WAS ALSO MEASURED AND MET SPEC AT ALL DOSES.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS395	4-BIT SHIFT REGISTR	TTL	1063	5650

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS395A		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
8004	CO-60 + N*	10	VCC=+5.0V.

CUM. DOSE (RADS)	PARAMETERS	0		*N+200K	
		MEAN	SD	MEAN	SD
	VOL12	312.9	11.68	310.9	5.646
	VOL13	308.7	4.322	311.0	4.761
	VOL14	310.3	5.417	313.4	5.400
	VOL15	312.8	4.541	315.5	4.378
	VOL11	274.2	5.266	279.5	5.339

REMARKS: \*NEUTRON RAD. = 7.06E11 N/SQCM.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
54LS74	DUAL-D-FF	LSTTL	501-4 2950

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	54LS74		MARTIN-MARIETTA

LDC	RAD. TYPE	PART QTY.	BIAS
7834	CO-60	6	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	50K		100K		500K		1MEG	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TPLH	NS 10.25	.4523	10.13	.3108	10.51	.3343	10.58	.5573
TPHL	NS 10.92	.2887	10.88	.2261	10.52	.1946	11.04	.3343
								11.25 .3371

REMARKS: PRE-RAD DATA IS POST LINAC DATA

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
54LS74	DUAL D FLIP-FLOP	TTL	1103 5830

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LS74AJ		MARTIN

LDC	RAD. TYPE	PART QTY.	BIAS
7834	CO-60**	6	VCC=+5V.

CUM. DOSE (RADS): 0

PARAMETERS	50K		100K		500K		1MEG	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
FUNCTIONALITY	6PASS		6PASS		6PASS		6PASS	
TPLH *	NS 10.25	.4330	10.13	.2976	10.21	.3200	10.58	.5336
TPHL ***	NS 10.92	.2764	10.86	.2165	10.92	.1863	11.04	.3200
BOTH MEAS. @ VENABLE								11.25 .3227
								=1.3V.

REMARKS: \*\*AND LINAC. \*SPEC: TYP=13NS. MAX=25NS. \*\*\*SPEC: TYP=25NS. MAX=40NS.

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 GENERIC PART NUMBER: 54LS85  
 FUNCTION: 4 BIT COMPARATOR  
 TECHNOLOGY: LSTTL  
 REF. NO. RECORD: 25-73 3230  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: TI  
 PART NUMBER: SN54LS85J  
 SPECIFICATION: AEROJET  
 DATA SOURCE: AEROJET  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 7629 CO-60 5 +5V, WORST-CASE CIRCUIT  
 \*\*\*\*\*

CUM. DOSE (RADS): 0 2.5K 10.0K 40K 130K \*  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 VOH 5PASS 5PASS 5PASS 5PASS 5PASS  
 VOL 5PASS 5PASS 5PASS 5PASS 5PASS  
 II 5PASS 5PASS 5PASS 5PASS 5PASS  
 IIH 5PASS 5PASS 5PASS 5PASS 5PASS  
 IIL 5PASS 5PASS 5PASS 5PASS 5PASS  
 IOS 5PASS 5PASS 5PASS 5PASS 5PASS  
 ICC 5PASS 5PASS 5PASS 5PASS 5PASS  
 REMARKS: \*ALL PARAMETERS PASSED AT FINAL CUM DOSE OF 250K.  
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\*\*\*\*\*  
 GENERIC PART NUMBER: 54LS86  
 FUNCTION: QUAD EXCLUSIVE-OR  
 TECHNOLOGY: TTL  
 REF. NO. RECORD: 74 3740  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: SIGNETICS  
 PART NUMBER: 54LS86  
 SPECIFICATION: 911932  
 DATA SOURCE: HUGHES  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO-60 5 VCC=5.5V, RL=2K  
 \*\*\*\*\*

CUM. DOSE (RADS): 0 1MEG 6MEG  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 TTL UA 486.2 6.620 461.3 4.972 443.3 4.038  
 \*\*\*\*\*

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS95	4BIT PARALLEL SHIFT	LSTTL	75	3710

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SIGNETICS	SN54LS95B	912906	HUGHES

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	VCC=+5V

CUM. DOSE (RADS): 0

PARAMETERS	1M		3M		6M		15M	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>IH</sub>	1.601		1.577		1.594		1.586	
V <sub>IL</sub>	1.563		1.546		1.552		1.554	
V <sub>OH</sub>	3.058		3.042		3.030		3.030	
V <sub>OL</sub>	.2150		.2236		.2318		.2368	

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS95	4-BIT PARALLEL SHIF	LSTTL	75	3780

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	SN54LS95B	912906	HUGHES

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	VCC=+5V

CUM. DOSE (RADS): 0

PARAMETERS	1MEG		3MEG		6MEG	
	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>IH</sub>	1.096		1.084		1.076	
V <sub>IL</sub>	1.058		1.048		1.052	
V <sub>OH</sub>	3.005		3.004		2.978	
V <sub>OL</sub>	.2748		.2848		.2884	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LS95	4BIT PARALLEL SHIFT	LSTTL	75	3790

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TEXAS INS.	SN54LS95B	912906	HUGHES

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60		VCC=+5V

CUM. DOSE (RADS):		0		1MEG		3MEG		6MEG		15MEG	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>IH</sub>	V	1.187		1.198		1.202		1.204		1.205	
V <sub>IL</sub>	V	1.157		1.172		1.186		1.188		1.194	
V <sub>OH</sub>	V	2.991		2.954		2.962		2.938		2.961	
V <sub>OL</sub>	V	.2637		.2686		.2610		.2748		.2762	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54L00	GATE	TTL	501-3	3200

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	54L00		MARTIN MARRIETT

LDC	RAD. TYPE	PART QTY.	BIAS
7726	CO-60	6	UNK.

CUM. DOSE (RADS):		0		50K		100K		500K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
T <sub>PLH</sub>	NS	36.63	4.189	33.46	4.149	33.29	4.175	34.79	4.374
T <sub>PHL</sub>	NS	51.33	9.407	49.25	9.166	50.71	8.854	53.29	9.034

REMARKS: PRE-RAD DATA IS POST LINAC DATA

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LOO	QUAD 2 INPUT NAND	TTL	25-44	3380

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LOOJ		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7620	CO-60	4	5VDC

CUM. DOSE (RADS): 0

PARAMETERS	50K		160K		350K	
	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>OH</sub> *	4PASS		4PASS		4PASS	
V <sub>OL</sub>	4PASS		4PASS		4PASS	
I <sub>I</sub>	4PASS		4PASS		4PASS	
I <sub>IH</sub>	4PASS		**		4PASS	
I <sub>IL</sub>	4PASS		4PASS		4PASS	
I <sub>OS</sub>	4PASS		4PASS		4PASS	
I <sub>CC</sub>	4PASS		4PASS		4PASS	

REMARKS: \*ICCL PASSED. \*\*IFAIL: 18UA (SPEC=10UA). \*\*\*2FAIL: 26UA, 27UA.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LOO	QUAD 2-INPUT NAND	TTL	1102	5820

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LOOT		MARTIN

LDC	RAD. TYPE	PART QTY.	BIAS
7726	CO-60**	6	VCC=+5V.

CUM. DOSE (RADS): 0

PARAMETERS	50K		100K		500K		1MEG	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
FUNCTIONALITY	6PASS		6PASS		6PASS		6PASS	
T <sub>PLH</sub> *	36.63	4.101	33.46	4.062	32.04	7.802	34.79	4.282
T <sub>PHL</sub> ***	NS	51.33	9.209	45.50	14.86	50.71	8.667	53.29

BOTH MEAS.  
 @ VENABLE  
 = 1.3V.

REMARKS: \*\*AND LINAC. SPECS: TYP(\*)=35NS; TYP(\*\*)=31NS; MAX(\*&\*\*) = 60NS.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LO2	QUAD 2-INPUT NOR	TTL	72	3730

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	SN54LO2	909943	HUGHES

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	VCC=5.5V

CUM. DOSE (RADS):		0		1MEG		3MEG		6MEG		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
I1H1	UA	.1358	.0255	1.394	1.014	5.050	2.216	5.030	2.051	
I1H2	UA	.1125	.0189	.4500	.1710	.8985	.1471	.7335	.1304	
I1L	UA	112.6	2.395	112.0	2.139	111.8	2.149	111.4	2.183	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LO3	QUAD 2 INPUT NAND	TTL	25-45	3390

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LO3J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7701	CO-60	5	UNK.

CUM. DOSE (RADS):		0		56K		140K		450K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
I0H	5PASS		5PASS		5PASS		5PASS		5PASS	
V0L	5PASS		5PASS		5PASS		5PASS		5PASS	
I1	5PASS		5PASS		5PASS		5PASS		5PASS	
I1H	5PASS		5PASS		5PASS		5PASS		5PASS	
I1L	5PASS		5PASS		5PASS		5PASS		5PASS	
ICCH	5PASS		5PASS		5PASS		5PASS		5PASS	
ICCL	5PASS		5PASS		5PASS		5PASS		5PASS	

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54LO4	HEX INVERTER	TTL	25-46	3400

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54LO4J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7646	CO-60	5	UNK.

CUM. DOSE (RADS): 0 310K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>IK</sub> *	5PASS		5PASS		5PASS		5PASS		5PASS	
V <sub>OH</sub>	5PASS		5PASS		5PASS		5PASS		5PASS	
V <sub>OL</sub>	5PASS		5PASS		5PASS		5PASS		5PASS	
I <sub>I</sub>	5PASS		5PASS		5PASS		5PASS		5PASS	
I <sub>IH</sub>	5PASS		5PASS		5PASS		5PASS		5PASS	
I <sub>IL</sub>	5PASS		5PASS		5PASS		5PASS		5PASS	
I <sub>OS</sub>	5PASS		5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICGH, ICCL, THL, TLH WERE ALSO MEASURED AND MET SPEC AT ALL DOSES

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54L10	TRIPLE 3 INPUT NAND	TTL	25-47	3410

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54L10J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7603	CO-60	5	UNK.

CUM. DOSE (RADS): 0 56K 140K 450K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>OH</sub> *	5PASS		5PASS		5PASS		5PASS		5PASS	
V <sub>OL</sub>	5PASS		5PASS		5PASS		5PASS		5PASS	
I <sub>I</sub>	5PASS		5PASS		5PASS		5PASS		5PASS	
I <sub>IH</sub>	5PASS		5PASS		5PASS		5PASS		5PASS	
I <sub>IL</sub>	5PASS		5PASS		5PASS		5PASS		5PASS	
I <sub>OS</sub>	5PASS		5PASS		5PASS		5PASS		5PASS	
ICCH	5PASS		5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICCL WAS ALSO MEASURED AND MET SPEC AT ALL DOSES

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**GENERIC PART NUMBER: 54L72**

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54L20	DUAL 4 INPUT NAND	TTL	25-48	3420

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54L20J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7627	CO-60	5	UNK.

CUM. DOSE(RADS):	0	310K
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PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>OH</sub> *	5PASS							
V <sub>OL</sub>	5PASS							
II	5PASS							
IIH	5PASS							
IIIL	5PASS							
IOS	5PASS							
ICCH	5PASS							

REMARKS: \*ICCL ALSO PASSED. \*\*3 UNITS: (PRE).1<IIH<.3UA; (POST)3<IIH<8UA; SPEC=10U

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54L72	JK MASTER SLAVE FF	TTL	25-49	3590

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
JSC	DM54L72J		AEROJET

LDC	RAD.	TYPE	PART	QTY.	BIAS
7615	CO-60		5		+5V APPLICATION CIRCUIT

CUM. DOSE (RADS):		0		12.75K		42.50K		97.75K		301.75K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOH		SPASS		SPASS		SPASS				*	
VOL		SPASS		SPASS		SPASS				*	
II		SPASS		SPASS		1FAIL				*	
IIH		SPASS		SPASS		1FAIL				*	
IIL		SPASS		SPASS		SPASS				*	
IOS		SPASS		SPASS		SPASS				*	
ICC		SPASS		SPASS		SPASS				*	

REMARKS: \*ADDITIONAL PARAMETRIC FAILURES AS CUM DOSE INCREASED.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54L72	JK MASTER SLAVE FF	TTL	25-49	3600

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	DM54L72J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
**	CO-60	5	+5V APPLICATION CIRCUIT

CUM. DOSE(RADS): 0 12.75K 51.00K 112.2K 353.4K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V0H	5PASS		5PASS		5PASS		5PASS		5PASS	
V0L	5PASS		5PASS		5PASS		5PASS		5PASS	
I1	5PASS		5PASS		5PASS		5PASS		5PASS	
I1H	5PASS		5PASS		5PASS		5PASS		5PASS	
I1L	5PASS		5PASS		5PASS		5PASS		5PASS	
I0S	5PASS		5PASS		5PASS		5PASS		5PASS	
I0C	5PASS		5PASS		5PASS		5PASS		5PASS	

REMARKS: \*\* 3 PARTS 7921, 2 PARTS 7748.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54L74	DUAL-D-FF	TTL	501-5	3000

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	54L74		MARTIN-MARIETTA

LDC	RAD. TYPE	PART QTY.	BIAS
7730	CO-60	6	UNK.

CUM. DOSE(RADS): 0 50K 100K 500K 1M

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TPLH	NS	66.50	4.338	68.08	3.397	69.00	3.593	73.00	3.742	74.08
TPHL	NS	94.92	8.361	101.4	9.268	104.6	9.219	110.5	11.01	113.3

REMARKS: PRE-RAD DATA IS POST LINAC DATA.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54L74	DUAL D FLIP FLOP	TTL	25-51	3620

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54L74J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7630	CO-60	5	UNK.

CUM. DOSE (RADS) :	0		56K		140K		450K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS								
V0H	5PASS		5PASS		5PASS		5PASS	
V0L	5PASS		5PASS		5PASS		5PASS	
I I	5PASS		5PASS		5PASS		5PASS	
I IH	5PASS		5PASS		5PASS		5PASS	
I IL	5PASS		5PASS		5PASS		5PASS	
I CC	5PASS		5PASS		5PASS		5PASS	

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54L74	DUAL D FLIP-FLOP	TTL	1104	5840

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
II	SN54L74T		MARTIN

LDC	RAD.	TYPE	PART QTY.	BIAS
7730	C0-60**	6	VCC=+5V.	

CUM. DOSE (RADS) :		0		50K		100K		500K		1MEG	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
FUNCTIONALITY		6PASS		6PASS		6PASS		6PASS		6PASS	
TPLH *	NS	66.5	4.153	68.1	3.252	69.0	3.440	73.0	3.582	74.08	3.278
TPLH ***	NS	94.9	8.005	101.4	8.874	104.6	8.827	110.5	10.54	113.3	11.17

**BOTH MEAS.  
@ VENABLE  
= 1.3V.**

REMARKS: \*\*AND LINAC. SPEC: TYP=65NS. \*MAX=100NS, \*\*MAX=150NS.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54L93	4 BIT BINARY COUNT	TTL	25-52	3220

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54L93J		AERJDET

LDC	RAD. TYPE	PART QTY.	BIAS
7618	CO-60	5	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	19K		56K		140K		250K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>OH</sub>	5PASS		5PASS		5PASS		5PASS	
V <sub>OL</sub>	5PASS		5PASS		5PASS		5PASS	
I <sub>I</sub>	5PASS		5PASS		5PASS		5PASS	
I <sub>IH</sub>	5PASS		5PASS		5PASS		5PASS	
I <sub>OL</sub>	5PASS		5PASS		5PASS		5PASS	
I <sub>CC</sub>	5PASS		5PASS		5PASS		5PASS	
I <sub>OS</sub>	5PASS		5PASS		5PASS		5PASS	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54S140	DUAL 4 INPUT NAND	STTL	25-90	3320

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54S140J		AERJDET

LDC	RAD. TYPE	PART QTY.	BIAS
7727	CO-60	5	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	56K		140K		450K	
	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>IK</sub> *	5PASS		5PASS		5PASS	
V <sub>OH</sub>	5PASS		5PASS		5PASS	
V <sub>OL</sub>	5PASS		5PASS		5PASS	
I <sub>I</sub>	5PASS		5PASS		5PASS	
I <sub>IH</sub>	5PASS		5PASS		5PASS	
I <sub>OL</sub>	5PASS		5PASS		5PASS	
I <sub>OS</sub>	5PASS		5PASS		5PASS	

REMARKS: \*ICC(QUIESCENT) WAS ALSO MEASURED AND MET SPEC AT ALL DOSES

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54S188	32X8 PROM	STTL	25-91	3370

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54S188AJ		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7808	CO-60	5	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	65K		120K		340K	
	MEAN	SD	MEAN	SD	MEAN	SD
VIK	5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS	
IOH	5PASS		5PASS		5PASS	
II	MA		*		1FAIL	
IIH	UA		*		1FAIL	
IIL	UA		*		1FAIL	
ICC	5PASS		5PASS		5PASS	

REMARKS: \*1FAIL: II=6.7MA(SPEC=1MA), IIH=590UA(SPEC=25UA), IIL=9.3UA(SPEC=-250UA).

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54S74	DUAL D FLIPFLOP	STTL	25-89	3670

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54S74J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7723	CO-60	5	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	19K		56K		140K		250K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIK *	5PASS		5PASS		5PASS		5PASS	
VCH	5PASS		5PASS		5PASS		5PASS	
VOL	5PASS		5PASS		5PASS		5PASS	
II	5PASS		5PASS		5PASS		5PASS	
IIH	5PASS		5PASS		5PASS		5PASS	
IIL	5PASS		5PASS		5PASS		5PASS	
IOS	5PASS		5PASS		5PASS		5PASS	

REMARKS: \*ICC WAS MEASURED AT 34MA BEFORE AND AFTER IRRADIATION (MAX SPEC=25MA)

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54172	JK MASTER-SLAVE FF	TTL	25-50	3610

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN54L72J		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7646	CO-60	14	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	10K		40K		130K		250K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>DH</sub>	14PAS		14PAS		14PAS		14PAS	
V <sub>OL</sub>	14PAS		14PAS		14PAS		14PAS	
I <sub>I</sub>	14PAS		14PAS		14PAS		14PAS	
I <sub>IH</sub>	14PAS		14PAS		14PAS		14PAS	
I <sub>IL</sub>	14PAS		14PAS		14PAS		14PAS	
I <sub>CC</sub>	14PAS		14PAS		14PAS		14PAS	
I <sub>US</sub>	14PAS		14PAS		14PAS		14PAS	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
54500	NAND GATE/INVERTER	STTL	76	3770

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SIGNETS	SN54S00	909902	HUGHES

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	VCC=5.5V, ALL OUTPUTS LOW

CUM. DOSE (RADS): 0

PARAMETERS	1MEG		3MEG		6MEG		15MEG	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
I <sub>CC</sub>	24.20		24.00		24.00		24.00	
V <sub>IL</sub>	.8000		.7750		.7400		.8300	
V <sub>IH</sub>	1.360		1.430		1.430		1.425	
V <sub>DH</sub>	3.081		3.030		3.010		3.060	
V <sub>OL</sub>	.3940		.3960		.3980		.4040	
I <sub>IL</sub>	1.620		1.620		1.580		1.600	
I <sub>OS</sub>	66.20		65.80		63.60		66.80	

REMARKS:

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GENERIC PART NUMBER: 5501  
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GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
5501      1024X1 RAM      CMOS/SOS      802      1540  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
RCA      MWS5501D      COMMERCIAL      GSFC PPM  
\*\*\*\*\*

LDC    RAD. TYPE    PART QTY.    BIAS  
-----  
7823    CO-60      20      +10V  
\*\*\*\*\*

CUM. DOSE (RADS):      0      2K      4K  
-----  
PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
-----  
FUNCTIONALITY      20      PASS      10      FAIL      13      FAIL  
\*\*\*\*\*

REMARKS:  
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\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
5501      RAM      CMOS/SOS      701-3      3280  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
RCA      MWS5501D      AFWL-TR-7S-118  
\*\*\*\*\*

LDC    RAD. TYPE    PART QTY.    BIAS  
-----  
UNK.    CO-60      10      VCC=5V; 5 HAD VCC TO INPUTS. 5 HAD INPUTS AT GND  
\*\*\*\*\*

CUM. DOSE (RADS):      0      5K      7K      10K  
-----  
PARAMETERS      MEAN    SD      MEAN    SD      MEAN    SD      MEAN    SD  
-----  
ICC2      MA      .099      1.390      1.890      2.260  
IOL      MA      14.40      13.50      13.00  
IOH      MA      6.410      5.030      4.850  
TAC      NS      77.00      75.00      81.60  
\*\*\*\*\*

REMARKS:  
\*\*\*\*\*

\*\*\*\*\*  
GENERIC PART NUMBER: 5501  
\*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
55180	DUAL NAND	TTL	25-92	3580

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SN55180L		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
P7701	CO-60	8	UNK.

CUM. DOSE (RADS): 0 2.5K 10K 40K 130K \*

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOL	8PASS		8PASS		8PASS		8PASS		8PASS	
II	8PASS		8PASS		8PASS		8PASS		8PASS	
IL	8PASS		8PASS		8PASS		8PASS		8PASS	
IIH	8PASS		8PASS		8PASS		8PASS		8PASS	
IIL	8PASS		8PASS		8PASS		8PASS		8PASS	
ICCL	8PASS		8PASS		8PASS		8PASS		8PASS	
ICCH	8PASS		8PASS		8PASS		8PASS		8PASS	

REMARKS: \*ALL PARAMETERS WITHIN SPECIFIED LIMITS AT FINAL CUM DOSE OF 250K RAD.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
555	TIMER	BIPOLAR	64	3030

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NATIONAL	LM555H		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	6	UNK.

CUM. DOSE (RADS): 0 500K 1.25M

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD
TP	23.23	.2338	23.87	.6218	24.37	1.109
V0	4.950	.0837	4.492	.2268	4.075	1.586
F0	38.10	.7328	39.32	.9845	33.98	2.81

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
555	TIMER	BIPOLAR	25-93	3330

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TI	SE555L		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
P7650	CO-60	5	UNK.

CUM. DOSE (RADS):	0	19K		56K		140K		250K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS									
VOH	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS
VOL	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS
VTH	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS
VCON	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS
II	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS
ICC	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS	5PASS

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
555	TIMING CIRCUIT	BIPOLAR	1057	5590

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MOTOROLA	MC1555		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7548	CO-60 + N*	10	VCC=+10V.

CUM. DOSE (RADS):	0	*N+200K	
		MEAN	SD
PARAMETERS			
VOL	MV	99.81	6.42
ITH	NA	26.45	11.95

REMARKS: \*NEUTRON RAD. = 6.04E11 N/SOCM.

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\*\*\*\*\*  
 GENERIC PART NUMBER 555  
 FUNCTION TIMER  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 1069 5710  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER  
 PART NUMBER  
 SPECIFICATION  
 DATA SOURCE  
 SIGNETICS SE555 TRW  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 \*\* CO-60 + N\* 10 V+=+10V.  
 \*\*\*\*\*

CUM. DOSE(RADS): 0 \*N+100K \*N+300K \*N+500K  
 \*\*\*\*\*  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 VOL(1) MV 72.63 9.648 84.28 11.04 89.02 11.30 90.95 11.42  
 VOL(2) MV 74.91 10.04 87.21 12.06 92.88 11.18 93.70 11.83  
 -SEE REC. 5711  
 VTH V 9.978 .0042 9.982 .0042 9.988 .0042 9.988 .0042  
 @VCE=15V  
 \*\*\* VOL (1), (2)- SEE NOTE ON REC. 5711  
 \*\*\*\*\*

\*\*\*\*\*  
 REMARKS: \*\*7847,7843. \*NEUTRON RAD. = 6.E11 N/SQCM. \*\*\*CONTINUED ON REC. 5711  
 \*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER 555  
 FUNCTION TIMER  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 1069 5711  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER  
 PART NUMBER  
 SPECIFICATION  
 DATA SOURCE  
 SIGNETICS SE555  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 \*\*\*\*\*

CUM. DOSE(RADS): 0 N+100K N+300K N+500K  
 \*\*\*\*\*  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 \*\* ITH NA 6.755 4.350 50.99 32.17 143.2 74.25 192.3 96.84  
 @VCC=15V.  
 VDH V 13.54 .0372 13.45 .0538 13.40 .0831 13.36 .0906  
 @IOH=100MA  
 \*\*\*\*\*

\*\*\*\*\*  
 REMARKS: \*\*CONTINUATION FROM REC. 5710. (1)MEAS.<6S. POST-TURN-ON (2)>60S. PTO.  
 \*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	III	1-3	3090
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
ADI	AD571		JPL	

LDC	RAD.	TYPE	PART	QTY.	BIAS						
7846N	2.5MEV	EL	2		VCC=15V, VDD=-15V.						
CUM. DOSE (RADS): 0											
PARAMETERS											
		MEAN	SD	30K		75K		150K		600K	
				MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ICC-BLK(5)%MA		1.40		1.35		1.35		1.40		1.38	
ICC-BLK(15)%MA		3.60		3.55		3.60		3.65		3.75	
ICC-CONV(5)%MA		5.25		4.40		4.05		3.57		1.90	
ICC-CONV(15)%MA		9.65		8.70		8.23		7.75		4.40	
TBLANK(5) US		974		969		995		FAIL		FAIL	
TBLANK(15) US		931		962		1015		1075		FAIL	
--PARAMETERS		CONT.		ON		REC. 3091.					
REMARKS: * MEAN=WORST-CASE PARAMETER VALUE (NOT AVG.): V=-15V, V+=() OR 5V.											

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-3	309
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
ADI	AD571			

LDC	RAD. TYPE	PART QTY.	0		30K		75K		150K		600K	
			MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
CUM. DOSE (RADS):												
PARAMETERS												
			22.7		24.5		28.1		33.0		FAIL	
	TCONV(5)	US										
	TCONV(15)	US	22.9		24.6		28.2		31.8		FAIL	
	IIH(5)	NA	15.03		17.30		155.2		758		816	
	IIH(15)	NA	16.72		19.97		233		1064		1026	
	IIL(5)	UA	3.52		3.40		3.57		2.90		3.57	
	IIL(15)	UA	4.33		3.99		4.10		3.31		4.15	

REMARKS: CONTINUATION FROM RECORD 3090. \*PARAMETERS CONTINUED ON RECORD 3092.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-3	3092

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0 30K 75K 150K 600K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOL(5) MV	16.95		23.0		48.9		349		3080	
VOL(15) MV	19.4		22.0		32.8		157		2590	
IOL(5) MA	9.68		7.58		2.90		FAIL		FAIL	
IOL(15) MA	12.18		10.90		7.20		1.39		FAIL	
END										

OF  
 PARAMETERS  
 REMARKS: CONTINUATION FROM RECORD 3093.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-3	3092

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0 30K 75K 150K 600K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IOZL(5) NA	0.120		6.95		777		3930		978	
IOZL(15) NA	111.6		119.0		1491		7250		2160	
VOH(5) V	4.92		4.93		4.91		4.82		1.80	
VOH(15) V	14.80		14.80		14.80		14.70		5.30	
IOH(5) MA	14.45		14.10		FAIL		FAIL		FAIL	
IOH(15) UA	22.8		22.8		21.1		14.7		5.5	

\*  
 REMARKS: CONTINUATION FROM RECORD. 3092. \*PARAMETERS CONTINUED ON RECORD 3094.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-3	3092
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
ADI	AD571			

LDC	RAD.	TYPE	PART	QTY.	BIAS
1	1	1	1	1	1

CUM.DOSE(RADS):	0		30K		75K		150K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS										
IEE-BLK(5) MA	10.55		10.24		8.32		7.91		9.77	
IEE-CONV MA	11.14		10.79		10.11		8.70		8.32	
OFFSET MV	10.07		10.07		9.16		44.3		FAIL	
OFFER LSB	1.00		1.00		9.06		4.56		8.03	
NONLIN LSB	0.57		0.51		0.23		FAIL		FAIL	
IOZH(5) NA	1.50		10.37		1295		6380		3650	
IOZH(15) NA	9.30		23.5		2120		8800		5050	

REMARKS: CONTINUATION FROM RECORD 3091. PARAMETERS CONTINUED ON RECORD 3093.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-4	3100
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
ADI	AD571		JPL	

LDC	RAD. TYPE	PART QTY.	BIAS
7846N	2.5MEV EL	4	VCC=15V, VDD=-15V.

CUM.DOSE(RADS):		0		30K		75K		150K		600K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ICC-BLK(5)*MA		1.45		1.35		1.30		1.30		1.20	
ICC-BLK(15)MA		3.42		3.27		3.25		3.20		3.05	
ICC-CONV(5)MA		6.75		5.10		4.40		3.75		2.45	
ICC-CONV(15)MA		11.18		9.25		8.45		7.75		3.45	
TBLANK(5) US		1.115		1.080		1.145		1.185		FAIL	
TBLANK(15) US		1.040		1.055		1.170		2.21		FAIL	
--PARAMETERS		CONT.		ON		REC.		3101.			

REMARKS: \* MEAN = WORST-CASE PARAM. VALUE (NOT AVG.) @ VDD=-15V, VTC=().

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-4	3101

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE(RADS): 0

PARAMETERS	30K		75K		150K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TCONV(5) US	25.3		27.1		32.6		32.6	
TCONV(15) US	25.4		27.8		33.0		33.0	
IIL(5) NA	15.42		22.0		1060		1060	
IIL(15) NA	17.43		28.0		1450		1450	
IIL(5) UA	2.72		3.18		2.56		2.81	
IIL(15) UA	3.21		3.61		2.99		3.28	

\* REMARKS: CONTINUATION FROM RECORD 3100. \*PARAMETERS CONTINUED ON RECORD 3102.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-4	3102

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE(RADS): 0

PARAMETERS	30K		75K		150K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IEE-BLK(5) MA	9.31		8.83		9.47		8.34	
IEE-CONV MA	10.53		10.48		10.24		10.23	
OFFSET MV	6.10		6.10		107.1		107.1	
OFFERR LSB	0.594		0.594		7.69		7.69	
NONLIN LSB	0.158		0.332		0.457		1.150	
IOZH(5) NA	0.81		10.06		1510		2420	
IOZH(15) NA	1.46		21.37		1820		5070	

\* REMARKS: CONTINUATION FROM RECORD 3101. \*PARAMETERS CONTINUED ON RECORD 3103.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-4	3103

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE(RADS): 0

PARAMETERS	30K		75K		150K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IOZL(5)	NA	0.33	2.79	911	2630	445		
IOZL(15)	NA	0.35	10.08	1930	4580	1870		
VOH(5)	V	4.92	4.92	4.91	4.91	1.27		
VOH(15)	V	14.85	14.85	14.83	14.82	2.58		
IOH(5)	MA	24.2	23.3	20.8	6.57	FAIL		
IOH(15)	UA	23.0	22.9	22.6	22.0	2320		

REMARKS: CONTINUATION FROM RECORD 3102. \*PARAMETERS CONTINUED ON RECORD 3104.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-4	3104

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE(RADS): 0

PARAMETERS	30K		75K		150K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOL(5)	MV	12.8	16.4	23.3	41.5	2390		
VOL(15)	MV	14.5	16.9	21.8	2980	2310		
IOL(5)	MA	9.29	8.38	6.78	2.85	FAIL		
IOL(15)	MA	12.07	11.16	10.08	6.77	0.008		

REMARKS: CONTINUATION FROM RECORD 3103.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-5	3110
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
ADI	AD571		JPL	

LDLC	RAD.	TYPE	PART	QTY.	BIAS
7922N	2.5MEV	EL	4	VCC=15V.	VDD=-15V.

CUM_DOSE(RADS):	O		30.OK		75.OK		15OK		30OK	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ICC-BLK(5)*MA	1.350		1.250		0.866		0.850		FAIL	
ICC-BLK(15)MA	3.50	3.35	3.35		3.30		3.30		FAIL	
ICC-CONV(5)MA	9.45	8.00	8.00		7.25		6.55		FAIL	
ICC-CONV(15)MA	0.995	1.030	1.030		1.040		FAIL		FAIL	
TBLANK(15) US	0.965	1.040	1.040		1.155		FAIL		FAIL	
TCONV(5) US	23.9	28.5	28.5		35.7		FAIL		FAIL	
PARAMETERS										
CONT.	ON	REC.	3111.							
REMARKS:	MEAN = WORST-CASE PARAM. VALUE (NOT AVG.).								*VCC=(), VDD=-15V.	

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-5	3111
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
ADI	AD571			

LDC	RAD.	TYPE	PART QTY.	BIAS
CUM DOSE(RADS)	O			
PARAMETERS	MEAN	SD	30.OK MEAN SD	75.OK MEAN SD
TCONV(15) US	23.9		28.6	35.0
IHH(5) NA	15.46		17.43	58.5
IHH(15) NA	17.99		20.2	82.3
IHL(5) UA	2.52		2.21	2.18
IIL(15) UA	2.90		2.49	2.45
IEE-BLK(5) MA	10.11		9.12	8.25
IEE-CONV(5)MA	11.30		10.03	8.67
REMARKS:	CONTINUATION OF RECORD 3110.			
	PARAMETERS CONTINUED ON RECORD 3112.			

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-5	3112
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
ADI	AD571			
LDC	RAD. TYPE	PART QTY.	BIAS	

CUM. DOSE (RADS):		0		30.0K		75.0K		150K		300K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
OFFSET	MV	6.10		5.18		4.27		161		FAIL	
OFFERR, LSB		0.593		0.500		0.406		16.53		FAIL	
NONLIN, LSB		1.055		1.082		1.528		3.355		FAIL	
IOZH(5)	NA	0.551		2.917		118		719		FAIL	
IOZL(5)	NA	0.154		0.504		45.2		452		FAIL	
IOZL(15)	NA	0.595		2.095		172		1140		FAIL	
VOH(5)	V	4.92		4.93		4.93		4.92		FAIL	

REMARKS: CONTINUATION OF RECORD 3111. PARAMETERS CONTINUED ON RECORD 3113.

REMARKS: CONTINUATION OF RECORD 3111. PARAMETERS CONTINUED ON RECORD 3113.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-5	3113
MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE	
ADI	AD571			
LDC	RAD. TYPE	PART QTY.	BIAS	

CUM. DOSE (RADS):		0		30.0K		75.0K		150K		300K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V	VOH(15)	14.85		14.85		14.85		14.84		FAIL	
MA	IOH(5)	25.3		21.3		FAIL		FAIL		FAIL	
UA	IOH(15)	22.9		22.1		22.1		14.9		FAIL	
MV	VOL(5)	13.0		23.6		302		496		FAIL	
MV	VOL(15)	14.6		20.9		124		2670		FAIL	
MA	IOI(5)	10.99		6.61		FAIL		FAIL		FAIL	
MA	IOI(15)	14.45		9.98		1.57		FAIL		FAIL	

REMARKS: CONTINUATION OF RECORD 3112.

102 (13) MA 14:43 3.58  
REMARKS: CONTINUATION OF RECORD 3112.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-6	3120

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7922	2.5MEV EL	5	VCC=15, VDD=-15V.

CUM. DOSE(RADS): 0 30K 75K 150K 300K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ICC-BLK(5)*MA	1.40		1.30		1.25		1.18		1.10	
ICC-BLK(15)MA	3.40		3.30		3.25		3.16		3.15	
ICC-CONV(5)MA	5.40		4.15		3.40		2.70		1.20	
ICC-CONV(15)MA	9.70		8.20		7.40		6.00		3.15	
TBLAN..(5) US	0.970		1.025		1.020		FAIL		FAIL	
TBLANK(15) US	0.940		1.005		1.045		FAIL		FAIL	

--PARAMETERS CONT. ON REC. 3121.  
 REMARKS: \*()=VCC. NOTE: MEAN = WORST-CASE PARAMETER VALUE (NOT AVERAGE).

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-6	3121

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC	RAD. TYPE	PART QTY.	BIAS
-----	-----------	-----------	------

CUM. DOSE(RADS): 0 30K 75K 150K 300K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TCONV(5) US	25.5		27.6		30.5		FAIL		FAIL	
TCONV(15) US	25.6		27.7		30.6		FAIL		FAIL	
IIL(5) NA	15.43		16.91		42.7		148		309	
IIL(15) NA	17.83		19.55		56.4		199		420	
IIL(5) UA	4.04		3.09		2.61		2.37		2.23	
IIL(15) UA	5.08		3.56		3.01		2.68		2.59	

\*  
 REMARKS: CONTINUATION OF RECORD 3120. \*PARAMETERS CONTINUED ON RECORD 3122.

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\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
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571      10-BIT A/D CONVRTR.      IIL      1-6      3122  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
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ADI      AD571  
\*\*\*\*\*

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----

\*\*\*\*\*  
CUM. DOSE(RADS):      0      30K      75K      150K      300K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
IEE-BLK(5) MA      10.19      9.58      9.05      8.45      9.08  
IEE-CONV(5) MA      11.06      10.59      10.11      8.63      9.34  
OFFSET MV      6.10      6.10      6.10      161      FAIL  
OFFERR LSB      0.59      0.59      0.59      16.53      FAIL  
NONLIN LSB      1.055      1.053      1.496      3.06      3.88  
IOZH(5) NA      1.525      5.49      58.9      411      758  
IOZH(15)\* NA      165.4      176.5      235      647      1190  
\*\*\*\*\*  
REMARKS: CONTINUATION OF RECORD 3121.      \*PARAMETERS CONTINUED ON RECORD 3123.  
\*\*\*\*\*

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\*\*\*\*\*  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
571      10-BIT A/D CONVRTR      IIL      1-6      3123  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
ADI      AD571  
\*\*\*\*\*

\*\*\*\*\*  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----

\*\*\*\*\*  
CUM. DOSE(RADS):      0      30K      75K      150K      300K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
IOZL(5) NA  
IOZL(15) NA  
VOH(5) V  
VOH(15) V  
IOH(5) MA  
IOH(15) UA  
\*\*\*\*\*

\*\*\*\*\*  
REMARKS: CONTINUATION OF RECORD 3122.      \*PARAMETERS CONTINUED ON RECORD 3124.  
\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-6	3124

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC	RAD.	TYPE	PART QTY.	BIAS
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
10	10	10	10	10
11	11	11	11	11
12	12	12	12	12
13	13	13	13	13
14	14	14	14	14
15	15	15	15	15
16	16	16	16	16
17	17	17	17	17
18	18	18	18	18
19	19	19	19	19
20	20	20	20	20
21	21	21	21	21
22	22	22	22	22
23	23	23	23	23
24	24	24	24	24
25	25	25	25	25
26	26	26	26	26
27	27	27	27	27
28	28	28	28	28
29	29	29	29	29
30	30	30	30	30
31	31	31	31	31
32	32	32	32	32
33	33	33	33	33
34	34	34	34	34
35	35	35	35	35
36	36	36	36	36
37	37	37	37	37
38	38	38	38	38
39	39	39	39	39
40	40	40	40	40
41	41	41	41	41
42	42	42	42	42
43	43	43	43	43
44	44	44	44	44
45	45	45	45	45
46	46	46	46	46
47	47	47	47	47
48	48	48	48	48
49	49	49	49	49
50	50	50	50	50
51	51	51	51	51
52	52	52	52	52
53	53	53	53	53
54	54	54	54	54
55	55	55	55	55
56	56	56	56	56
57	57	57	57	57
58	58	58	58	58
59	59	59	59	59
60	60	60	60	60
61	61	61	61	61
62	62	62	62	62
63	63	63	63	63
64	64	64	64	64
65	65	65	65	65
66	66	66	66	66
67	67	67	67	67
68	68	68	68	68
69	69	69	69	69
70	70	70	70	70
71	71	71	71	71
72	72	72	72	72
73	73	73	73	73
74	74	74	74	74
75	75	75	75	75
76	76	76	76	76
77	77	77	77	77
78	78	78	78	78
79	79	79	79	79
80	80	80	80	80
81	81	81	81	81
82	82	82	82	82
83	83	83	83	83
84	84	84	84	84
85	85	85	85	85
86	86	86	86	86
87	87	87	87	8

CUM. DOSE (RADS)	PARAMETERS	0		30K		75K		150K		300K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
10	WOL(5)	12.91		18.29		80.8		502		FAIL	
	WOL(15)	14.87		18.29		34.2		571		1830	
	MA	10.49		8.18		1.585		FAIL		FAIL	
	WOL(5)	14.10		11.56		6.14		FAIL		FAIL	

PARAMETERS.  
REMARKS: CONTINUATION OF RECORD 3123.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVERT.	IIL	1-7	3130

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		IPJ

DC	RAD.	TYPE	PART	QTY.	BIAS
28D		2.5MEV EL	4		VCC=15V VDD=-15V

CUM.DOSE(RADS):	0		30K		75K		150K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS										
CC-BLK(5)*MA	1.50		1.50		1.55		1.55		FAIL	
CC-BLK(15)MA	5.3		5.3		5.4		5.4		FAIL	
CC-CONV(5)MA	5.20		4.95		4.85		4.45		FAIL	
CC-CNV(15)MA	11.68		11.33		11.25		10.82		FAIL	
TBLANK(5) US	0.99		1.08		1.17		2.18		FAIL	
TBLANK(15) US	0.96		1.03		1.98		2.32		FAIL	

PARAMETERS	COUNT	UN	REC.	STST.
REMARKS: *( )=VCC.	NOTE:	MEAN =	WORST-CASE	PARAMETER VALUE (NOT AVERAGE).

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
571	10-BIT A/D CONVRTR.	11	1-7 3131

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS):		0		30K		75K		150K		300K	
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
TCONV(5) US	30.3		31.9		32.9		34.6		34.6	FAIL	
TCONV(15) US	30.3		32.0		33.0		34.5		34.5	FAIL	
IIH(5) NA	15.78		21.9		445		391		391	FAIL	
IIH(15) NA	18.09		28.8		668		563		563	FAIL	
IIL(5) UA	0.71		1.07		1.12		1.19		1.19	FAIL	
IIL(15) UA	0.86		1.25		1.21		1.28		1.28	FAIL	

REMARKS: CONTINUATION OF RECORD 3130. \*PARAMETERS CONTINUED ON RECORD 3132.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
571	10-BIT A/D CONVRTR.	11L	1-7 3132

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE(RADS):		0		30K		75K		150K		300K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IEE-BLK(5) MA		9.70		9.54		9.48		9.39		FAIL	
IEE-CONV(5)MA		10.97		10.75		10.6		9.9		FAIL	
DIFFSET MV		1.295		2.24		130		635		FAIL	
OFFERR LSB		0.132		0.229		12.9		FAIL		FAIL	
NONLIN LSB		0.153		0.263		0.453		FAIL		FAIL	
IOZH(5) NA		0.511		30.4		1760		2560		FAIL	
IOZH(15) * NA		1.26		57.9		2190		3210		FAIL	
REMARKS: CONTINUATION OF RECORD 3133. *PARAMETERS CONTINUED ON RECORD 3133.											

REMARKS: CONTINUATION OF RECORD 3133. \*PARAMETERS CONTINUED ON RECORD 3133.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVERT.	IIL	1-7	3133

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC	RAD.	TYPE	PART	QTY.	BIAS
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15
16	16	16	16	16	16
17	17	17	17	17	17
18	18	18	18	18	18
19	19	19	19	19	19
20	20	20	20	20	20
21	21	21	21	21	21
22	22	22	22	22	22
23	23	23	23	23	23
24	24	24	24	24	24
25	25	25	25	25	25
26	26	26	26	26	26
27	27	27	27	27	27
28	28	28	28	28	28
29	29	29	29	29	29
30	30	30	30	30	30
31	31	31	31	31	31
32	32	32	32	32	32
33	33	33	33	33	33
34	34	34	34	34	34
35	35	35	35	35	35
36	36	36	36	36	36
37	37	37	37	37	37
38	38	38	38	38	38
39	39	39	39	39	39
40	40	40	40	40	40
41	41	41	41	41	41
42	42	42	42	42	42
43	43	43	43	43	43
44	44	44	44	44	44
45	45	45	45	45	45
46	46	46	46	46	46
47	47	47	47	47	47
48	48	48	48	48	48
49	49	49	49	49	49
50	50	50	50	50	50
51	51	51	51	51	51
52	52	52	52	52	52
53	53	53	53	53	53
54	54	54	54	54	54
55	55	55	55	55	55
56	56	56	56	56	56
57	57	57	57	57	57
58	58	58	58	58	58
59	59	59	59	59	59
60	60	60	60	60	60
61	61	61	61	61	61
62	62	62	62	62	62
63	63	63	63	63	63
64	64	64	64	64	64
65	65	65	65	65	65
66	66	66	66	66	66
67	67	67	67	67	67
68	68	68	68	68	68
69	69	69	69	69	69
70	70	70	70	70	70
71	71	71	71	71	71
72	72	72	72	72	72
73	73	73	73	73	73
74	74	74	74	74	74
75					

CUM. DOSE (RADS)	PARAMETERS	0		30K		75K		150K		300K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
	IOZL(5)	NA		0.098	27.1	1100		2990		FAIL	
	IOZL(15)	NA		0.490	85.6	2700		6180		FAIL	
	V0H(5)	V		4.93	4.93	4.91		4.91		FAIL	
	V0H(15)	V		14.85	14.85	14.83		14.83		FAIL	
	IOH(5)	NA		26.97	26.53	26.14		23.18		FAIL	
	IOH(15)	UA		24.8	24.6	23.8		23.7		FAIL	

REMARKS: CONTINUATION OF RECORD 3132. \*PARAMETERS CONTINUED ON RECORD 3134.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVERTER	IIL	1-7	3134

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC	RAD.	TYPE	PART	QTY.	BIAS

CUM. DOSE (RADS):		0		30K		75K		150K		300K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOL(5)		15.2		17.0		14.5		26.2		FAIL	
VOL(15)		19.2		20.3		21.4		26.1		FAIL	
IOL(5)		8.57		8.18		7.85		FAIL		FAIL	
IOL(15)		11.6		11.5		10.9		FAIL		FAIL	
END											

PARAMETERS  
REMARKS: CONTINUATION OF RECORD 3133.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-9	3140

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		JPL

LDC RAD. TYPE PART QTY. BIAS  
 \* 2.5MEV EL 1 VCC=15V, VDD=-15V.

CUM. DOSE(RADS): 0 30K 75K 150K 600K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ICC-BLK(5) MA	1.45		1.40		1.52		1.65		1.40	
ICC-BLK(15) MA	3.50		3.45		3.65		3.85		3.35	
ICC-CONV(5) MA	5.80		5.03		4.60		4.80		3.10	
ICC-CONV(15) MA	9.85		8.98		8.60		8.35		6.92	
IBLANK(5) NS	930		920		970		1030		FAIL	
IBLANK(15) NS	880		905		995		1170		FAIL	

\*PARAMETERS & DATE CODES CONT. ON REC. 3141.  
 REMARKS: NOTE: MEAN = WORST-CASE PARAMETER VALUE (NOT AVG.) @ VDD=15V, VCC=()

\*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-9	3141

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC RAD. TYPE PART QTY. BIAS  
 \*

CUM. DOSE(RADS): 0 30K 75K 150K 600K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TCONV(5) US	20.1		23.6		25.4		28.5		FAIL	
TCONV(15) US	22.0		23.6		25.4		28.6		FAIL	
IIL(5) NA	17.4		35.0		1130		1390		1050	
IIL(15) NA	19.4		50.2		1640		1950		1320	
IIL(5) UA	3.01		3.59		3.40		3.27		3.70	
IIL(15) UA	3.48		4.04		3.78		3.63		4.13	

--PARAMETERS CONT. ON REC. 3142.  
 REMARKS: CONTINUATION OF RECORD 3140. \*DATE CODES: 8105(1), 8107(2), 8108(2).

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-9	3142

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0

PARAMETERS	30K		75K		150K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IEE-BLK(5) MA	9.7		9.4		9.3		9.0	
IEE-CONV MA	11.3		10.7		9.9		9.2	
OFFSET MV	1.60		1.62		242		104	
OFFERR LSB	0.067		0.165		11.2		10.7	
NONLIN LSB	0.18		0.25		0.41		0.76	
IOZH(5) NA	0.51		215		2350		2370	
IOZH(15) NA	5.8		5.9		24600		24800	

REMARKS: CONTINUATION FROM RECORD 3141. PARAMETERS CONTINUED ON RECORD 3143.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVRTR.	IIL	1-9	3143

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0

PARAMETERS	30K		75K		150K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IOZL(5) NA	0.053		0.212		1910		2980	
IOZL(15) NA	10.8		11.4		4510		16200	
VOH(5) V	4.87		4.88		4.89		4.85	
VOH(15) V	14.72		14.75		14.74		14.53	
IOH(5) MA	28.3		27.7		27.2		25.3	
IOH(15) UA	14.8		14.9		14.5		13.8	

\*  
 REMARKS: CONTINUATION FROM RECORD 3142. \*PARAMETERS CONTINUED ON RECORD 3144.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVERTER.	IIL		3144

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD571		

LDC	RAD.	TYPE	PART	QTY.	BIAS
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15
16	16	16	16	16	16
17	17	17	17	17	17
18	18	18	18	18	18
19	19	19	19	19	19
20	20	20	20	20	20
21	21	21	21	21	21
22	22	22	22	22	22
23	23	23	23	23	23
24	24	24	24	24	24
25	25	25	25	25	25
26	26	26	26	26	26
27	27	27	27	27	27
28	28	28	28	28	28
29	29	29	29	29	29
30	30	30	30	30	30
31	31	31	31	31	31
32	32	32	32	32	32
33	33	33	33	33	33
34	34	34	34	34	34
35	35	35	35	35	35
36	36	36	36	36	36
37	37	37	37	37	37
38	38	38	38	38	38
39	39	39	39	39	39
40	40	40	40	40	40
41	41	41	41	41	41
42	42	42	42	42	42
43	43	43	43	43	43
44	44	44	44	44	44
45	45	45	45	45	45
46	46	46	46	46	46
47	47	47	47	47	47
48	48	48	48	48	48
49	49	49	49	49	49
50	50	50	50	50	50
51	51	51	51	51	51
52	52	52	52	52	52
53	53	53	53	53	53
54	54	54	54	54	54
55	55	55	55	55	55
56	56	56	56	56	56
57	57	57	57	57	57
58	58	58	58	58	58
59	59	59	59	59	59
60	60	60	60	60	60
61	61	61	61	61	61
62	62	62	62	62	62
63	63	63	63	63	63
64	64	64	64	64	64
65	65	65	65	65	65
66	66	66	66	66	66
67	67	67	67	67	67
68	68	68	68	68	68
69	69	69	69	69	69
70	70	70	70	70	70
71	71	71	71	71	71
72	72	72	72	72	72
73	73	73	73	73	73
74	74	74	74	74	74
75					

[illegible]

PARAMETERS  
REMARKS: CONTINUATION FROM RECORD 3143.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
171	A TO D CONVERTER	BIPOLAR	401-1	3800

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
D	AD571		IMSAT-PCC 860

DC	RAD.	TYPE	PART QTY.	BIAS
INK.	CD-60		1	V+=+5.00V, V-=-15.00V

		0		30K		79K		260K		660K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V(IN)	V	9.949		9.941		9.917		*			
V(IN)	V	O.O		O.O		O.O		*			
FUNCTIONALITY		PASS		PASS		PASS		*			FAIL

REMARKS: \*"TWO POINTS MALFUNCTIONED." ("POINTS"=PINS? -EDITOR.)

GENERIC PART NUMBER: 571

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MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ANALOG DEVICES	AD571		TRW

PARAMETERS		0		*N+30K	
		MEAN	SD	MEAN	SD
GUM DOSE (RADS):	WDS (ABS)	2.667	2.092	7.869	10.72
	WDL9	146.7	9.615	183.7	20.33
	WDL2	144.5	8.396	181.5	17.14
	WDL8	143.8	7.861	180.6	18.38
	WDL1	150.1	8.175	186.6	17.67
	WDL7	144.1	8.164	180.5	17.97

REMARKS: \*NEUTRON RAD. = 6E11 N/SQCM. \*\*CONTINUED ON RECORD 5581.

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ANALOG DEVICES	AD571		

PARAMETERS	O		N+30K	
	MEAN	SD	MEAN	SD
70L18	140.4	6.935	176.7	16.88
70L6	144.1	8.434	180.6	16.89
70L17	155.4	7.660	186.6	13.50
70L5	144.5	8.433	182.0	17.35
70L4	144.7	8.394	180.9	17.34
70L3	144.3	8.463	180.2	16.74

REMARKS: CONTINUATION OF RECORD 5580.

GENERIC PART NUMBER: 571

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVERTR	IIL	1076	5780

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ANALOG DEVICES	AD571		TRW

LDC	RAD.	TYPE	PART QTY.	BIAS
UNK.	C0-60	+ N*	5	V+=+5V: V=-15V.

PARAMETERS	O		*N+30K		*N+40K		*N+60K		*N+80K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
CUM. DOSE (RADS) :										
VOL(11)** MV	159.5	12.36	181.1	14.00	185.7	14.87	210.0	26.58	270.5	89.28
IOL(11)** MA	19.89	2.764	15.65	2.986	14.99	3.023	12.55	3.259	10.28	3.263
VOL(11)** V	3.570	0.0355	3.540	0.0358	3.537	0.0363	3.514	0.381	3.219	6.192
ILH20(10)**NA	-1.55	4.409	-1.16	4.476	-1.769	4.546	-1.119	4.600	-0.656	4.592
TLH20(10)**NA	782.5	1747.	783.5	1747.	783.1	1747.	783.5	1747.	785.2	1747.

CONTINUED ... ON REC. 5781  
REMARKS: \*NEUTRON FLUENCE=6.711 N/SQCM. \*\* (X) MEANS PARAM. AVG. OVER X PINS.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVERTER	ITL	1076	5781

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ANALOG DEVICES	AC571		

LDC	RAD.	TYPE	PART	QTY.	BIAS

CUM. DOSE (RADS)	0		N+30K		N+40K		N+60K		N+70K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS										
-TOS(11)	MA		MA		MA		MA		MA	
	54.47	5.195	54.62	5.219	54.95	5.257	56.81	5.519	59.12	6.113

REMARKS: CONTINUATION OF RECORD 5780. \*CONTINUED ON RECORD 5782.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVERTER	II	1076	5782

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ANALOG DEVICES	AD571		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0

PARAMETERS	N+30K		N+40K		N+60K		N+80K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
LINEARITY(+)	228.8	115.8	374.2	72.42	452.7	100.9	570.0	150.0
MILLI-LSB								
-LINEARITY(-)	276.5	61.89	420.1	61.75	471.0	120.0	653.4	114.0
MILLI-LSB								
STEP-DEVIATION(+)	213.0	65.25	296.1	73.72	356.9	92.98	500.6	128.8
MILLI-LSB								
REMARKS:	CONTINUATION OF RECORD 5781.							
	CONTINUED ON RECORD 5783.							

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVERTER	II	1076	5783

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ANALOG DEVICES	AD571		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0

PARAMETERS	N+30K		N+40K		N+60K		N+80K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
LINEARITY(+)	178.0	44.91	156.1	22.17	155.8	22.06	174.6	27.54
MILLI-LSB								
-LINEARITY(-)	9.966	.0039	9.944	.0077	9.939	.0082	9.925	.0116
MILLI-LSB								
STEP-DEVIATION(-)	.6724	3.660	.8900	5.105	1.285	4.951	2.452	5.794
MILLI-LSB								
REMARKS:	CONTINUATION FROM RECORD 5782.							
	CONTINUED ON RECORD 5784.							

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVERTR	IIL	1076	5784

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ANALOG DEVICES	AD571		

LDC	RAD.	TYPE	PART	QTY.	BIAS
1	1	1	1	1	1

CUM. DOSE (RADS) :		0		N+30K		N+40K		N+60K		N+80K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVERAGE											
MV	LSB	9.742	.0040	9.720	.0074	9.716	.0091	9.702	.0112	9.693	.0118
ICC	MA	7.240	0.366	6.050	0.260	5.940	0.268	5.580	0.259	5.300	0.232
TEE	MA	9.510	0.313	8.510	0.204	8.370	0.220	8.070	0.293	7.810	0.349

✱  
✱

REMARKS: CONTINUATION FROM RECORD 5783. \*\*CONTINUED ON RECORD 5785.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
571	10-BIT A/D CONVERTR	IIL	1076	5785

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ANALOG DEVICES	AD571		

DC	RAD.	TYPE	PART	QTY.	BIAS
1	1	1	1	1	1

SUM.DQSE(RADS):										
O		N+30K		N+4C <sup>2+</sup>		N+80K		N+100K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
CC	22.64	1.97	(NO DATA)		27.56	2.06	30.46	2.27	(NO DATA)	
CC	1.260	0.284	1.350	0.304	2.230	0.401	3.420	0.432	3.720	0.249
IH										
IL	3.189	.8230	3.153	.5196	3.278	.4583	3.413	.4422	3.447	.4054

REMARKS: CONTINUATION FROM RECORD 5784.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
574	12-Bit A/E CONVERT.	IIL	1-10	3050

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD574JD		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7903N	1.25MEVGAM	2	VCC=15. VDD=-15V. VLOGIC=5V.

CUM. DOSE (RADS) :	0		30K		75K		150K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS										
VREF(MIN)* V	9.97		9.98		9.98		9.98		9.99	
IREF(MIN) MA	1.43		1.20		3.74		3.93		3.47	
ILOGIC(MAX) MA	18.90		19.44		26.0		27.0		26.6	
ICC(MAX) MA	1.533		1.535		1.535		1.540		1.539	
IDD(MAX) MA	13.55		12.06		11.05		10.85		10.65	

---PARAMETERS CONT. ON REC. 3051.  
REMARKS: \* MEAN = WORST-CASE PARAMETER VALUE (NOT AVERAGE); BIAS AS ABOVE.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
574	12-BIT A/D CONVERTER.	III	1-10	3051

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD574JD		

LDC	RAD.	TYPE	PART	QTY.	BIAS
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15
16	16	16	16	16	16
17	17	17	17	17	17
18	18	18	18	18	18
19	19	19	19	19	19
20	20	20	20	20	20
21	21	21	21	21	21
22	22	22	22	22	22
23	23	23	23	23	23
24	24	24	24	24	24
25	25	25	25	25	25
26	26	26	26	26	26
27	27	27	27	27	27
28	28	28	28	28	28
29	29	29	29	29	29
30	30	30	30	30	30
31	31	31	31	31	31
32	32	32	32	32	32
33	33	33	33	33	33
34	34	34	34	34	34
35	35	35	35	35	35
36	36	36	36	36	36
37	37	37	37	37	37
38	38	38	38	38	38
39	39	39	39	39	39
40	40	40	40	40	40
41	41	41	41	41	41
42	42	42	42	42	42
43	43	43	43	43	43
44	44	44	44	44	44
45	45	45	45	45	45
46	46	46	46	46	46
47	47	47	47	47	47
48	48	48	48	48	48
49	49	49	49	49	49
50	50	50	50	50	50
51	51	51	51	51	51
52	52	52	52	52	52
53	53	53	53	53	53
54	54	54	54	54	54
55	55	55	55	55	55
56	56	56	56	56	56
57	57	57	57	57	57
58	58	58	58	58	58
59	59	59	59	59	59
60	60	60	60	60	60
61	61	61	61	61	61
62	62	62	62	62	62
63	63	63	63	63	63
64	64	64	64	64	64
65	65	65	65	65	65
66	66	66	66	66	66
67	67	67	67	67	67
68	68	68	68	68	68
69	69	69	69	69	69
70	70	70	70	70	70
71	71	71	71	71	71
72	72	72	72	72	72
73	73	73	73	73	73
74	74	74	74	74	74
75					

CUM. DOSE (RADS)	0		30K		75K		150K		600K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TCONV(MAX) US	21.00		21.35		FAIL		FAIL		FAIL	
ITDSC(MAX) NS	264		255		1024		1024		1024	
ITDS(MAX) NS	541		554		FAIL		FAIL		FAIL	
OFFSET(MAX) UV	2.13		4.88		FAIL		FAIL		FAIL	
OFFERR LSB	0.75		1.87		FAIL		FAIL		FAIL	
AOLOFF LSB	.0092		FAIL		FAIL		FAIL		FAIL	
AOLOERR LSB	1.121		FAIL		FAIL		FAIL		FAIL	

REMARKS: CONTINUATION FROM RECORD 3050. PARAMETERS CONTINUED ON RECORD 3052.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
574	12-BIT A/D CONVRTR.	IIL	1-10	3052

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD574JD		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0 30K 75K 150K 600K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
NONLIN	1.045		8.55		FAIL		FAIL		FAIL	
IOZH(MAX)	3.28		4.92		6420		953		571	
IOZL(MAX)	.0683		1.347		FAIL		FAIL		FAIL	
VOH(MIN)	4.48		4.07		FAIL		FAIL		FAIL	
VOL(MAX)	17.27		21.1		549		158		428	
IOH(MIN)	2.28		0.807		0.177		0.822		0.556	
IOL(MIN)	7.05		6.68		.0072		0.758		0.527	

REMARKS: CONTINUATION FROM RECORD 3051. PARAMETERS CONTINUED ON RECORD 3053.

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
574	12-BIT A/D CONVRTR.	IIL	1-10	3053

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD574JD		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0 30K 75K 150K 600K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IIL(MAX)	0.891		1.403		1.793		1.964		2.52	
IIL(MIN)	14.26		14.86		16.34		21.0		55.4	
TDD(MAX)	344		329		FAIL		FAIL		FAIL	
THS(MAX)	32.0		19.9		FAIL		FAIL		FAIL	

END OF

PARAMETERS  
 REMARKS: CONTINUATION FROM RECORD 3052.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
574	12-BIT A/D CONVERTER.	TTL	1-11	3060

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD574JD		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7909N	C0-60	3	VCC=15V, VDD=-15V, VLOGIC=5V.

CUM. DOSE (RADS):	0		30K		75K	
	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS						
VREF(MIN) * V	9.97		9.98		9.98	
IREF(MIN) * MA	1.545		4.87		5.26	
ILLOGIC(MAX)*MA	22.2		26.8		27.4	
ICC(MAX) * MA	1.720		1.725		1.825	
IDD(MAX) * MA	14.50		13.40		12.80	

---PARAMETERS CONT. ON REC. 3061.  
REMARKS: \* MEAN = WORST-CASE PARAMETER VALUE (NOT AVG.); BIAS SAME AS ABOVE.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
574	12-BIT A/D CONVERTER.	TTL	1-11	3061

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD574JD		

LDC	RAD.	TYPE	PART	QTY.	BIAS

CUM. DOSE (RADS):	0		30K		75K	
	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS						
TCONV(MAX)*US	27.7		27.9		FAIL	
TDSC(MAX)*NS	336		331		FAIL	
TDS(MAX)*NS	626		636		FAIL	
DIFFSET(MAX)*MV	2.13		1.831		FAIL	
DIFFERR*LSB	0.75		0.75		FAIL	
QOL OFF*LSB	0.01		0.007		FAIL	
QOL ERR*LSB	4.87		2.99		FAIL	

REMARKS: CONTINUATION FROM RECORD 3060. PARAMETERS CONTINUED ON RECORD 3062.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
574	12-BIT A/D CONVRTR.	TTL	1-11	3062

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD574JD		

LDC	RAD.	TYPE	PART	QTY.	BIAS

CUM. DOSE (RADS)	0		30K		75K	
	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS						
NONLIN*	1.013		FAIL		FAIL	
IOZH(MAX)* NA	0.75		1510		FAIL	
IOZL(MAX)* NA	0.099		141		FAIL	
V V	4.44		2.13		FAIL	
VOL(MAX)* MV	23.2		28.7		88.7	
IOH(MIN)* MA	2.39		0.889		0.885	
IOL(MIN)* MA	6.77		6.59		0.831	

REMARKS: CONTINUATION FROM RECORD 3061. PARAMETERS CONTINUED ON RECORD 3063.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
574	12-BIT A/D CONVRTR.	TTL	1-11	3063

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD574JD		

LDLC	RAD.	TYPE	PART	QTY.	BIAS

CUM. DOSE (RADS)	0		30K		75K	
	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS						
IIH(MAX) * UA	1.382		1.828		2.14	
IIIL(MAX) * NA	14.50		14.80		28.4	
TDD(MAX) * NS	351		329		FAIL	
THS(MAX) * NS	4.58		FAIL		FAIL	

PARAMETERS  
REMARKS: CONTINUATION FROM RECORD 3062.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
574	12-BIT A/D CONVRT.	IIL	1-12	3070

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD574JD		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7905N	1.25MEV**	2	VCC=15V, VDD=-15V, VLOGIC=5V.

CUM. DOSE (RADS):		0		30K		75K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VREF(MIN) V	9.97		9.99		9.99		9.99	
IREF(MIN) MA	1.47		3.92		4.16		4.16	
ILOGIC(MAX) MA	21.0		41.8		31.2		31.2	
ICC(MIN) MA	1.625		1.626		1.670		1.670	
IDD(MAX) MA	13.73		12.60		11.45		11.45	

--PARAMETERS CONT. ON REC. 3071.  
 REMARKS: MEAN=WORST-CASE VALUE (NOT AVG.). \*\*NOT STATED WHETHER EL OR GAMMA.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
574	12-BIT A/D CONVRT.	IIL	1-12	3071

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD574JD		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS):		0		30K		75K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TCONV(MAX) US	21.2		20.5		20.5		20.5	
TDSC(MAX) NS	280		273		273		273	
TDS(MAX) NS	626		636		636		636	
OFFSET(MAX) MV	2.13		FAIL		FAIL		FAIL	
OFFERR LSB	0.00		FAIL		FAIL		FAIL	
AOL OFF LSB	10.07		FAIL		FAIL		FAIL	
AOL ERR LSB	4.12		FAIL		FAIL		FAIL	

REMARKS: CONTINUATION FROM RECORD 3070. PARAMETERS CONTINUED ON RECORD 3072.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
574	12-BIT A/D CONVRTR.	1L	1-12	3072

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD574JD		

LDC	RAD.	TYPE	PART QTY.	BIAS
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
10	10	10	10	10
11	11	11	11	11
12	12	12	12	12
13	13	13	13	13
14	14	14	14	14
15	15	15	15	15
16	16	16	16	16
17	17	17	17	17
18	18	18	18	18
19	19	19	19	19
20	20	20	20	20
21	21	21	21	21
22	22	22	22	22
23	23	23	23	23
24	24	24	24	24
25	25	25	25	25
26	26	26	26	26
27	27	27	27	27
28	28	28	28	28
29	29	29	29	29
30	30	30	30	30
31	31	31	31	31
32	32	32	32	32
33	33	33	33	33
34	34	34	34	34
35	35	35	35	35
36	36	36	36	36
37	37	37	37	37
38	38	38	38	38
39	39	39	39	39
40	40	40	40	40
41	41	41	41	41
42	42	42	42	42
43	43	43	43	43
44	44	44	44	44
45	45	45	45	45
46	46	46	46	46
47	47	47	47	47
48	48	48	48	48
49	49	49	49	49
50	50	50	50	50
51	51	51	51	51
52	52	52	52	52
53	53	53	53	53
54	54	54	54	54
55	55	55	55	55
56	56	56	56	56
57	57	57	57	57
58	58	58	58	58
59	59	59	59	59
60	60	60	60	60
61	61	61	61	61
62	62	62	62	62
63	63	63	63	63
64	64	64	64	64
65	65	65	65	65
66	66	66	66	66
67	67	67	67	67
68	68	68	68	68
69	69	69	69	69
70	70	70	70	70
71	71	71	71	71
72	72	72	72	72
73	73	73	73	73
74	74	74	74	74
75	75	75	75	75
76	76	76	76	76
77	77	77	77	77
78	78	78	78	78
79	79	79	79	79
80	80	80	80	80
81	81	81	81	81
82	82	82	82	82
83	83	83	83	83
84	84	84	84	84
85	85	85	85	85
86	86	86	86	86
87	87	87	87	8

CUM. DOSE (RADS)	0			30K			75K		
	MEAN	SD		MEAN	SD		MEAN	SD	
PARAMETERS									
NONLIN	1.013		LSB	FAIL			FAIL		
IOZH(MAX)	0.75		NA	1510			FAIL		
IOZL(MAX)	0.099		NA	141			FAIL		
VOH(MIN)	4.44		V	2.13			FAIL		
VOL(MAX)	23.2		MV	28.7			88.7		
IOH(MIN)	2.39		MA	0.899			0.885		
IOI(MIN)*	6.77		MA	6.59			0.831		

REMARKS: CONTINUATION FROM RECORD 3071. \*PARAMETERS CONTINUED ON RECORD 3073.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
574	12-BIT A/D CONVRTR.	IIL	1-12	3073

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD574JD		

LDC	RAD.	TYPE	PART	QTY.	BIAS
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15
16	16	16	16	16	16
17	17	17	17	17	17
18	18	18	18	18	18
19	19	19	19	19	19
20	20	20	20	20	20
21	21	21	21	21	21
22	22	22	22	22	22
23	23	23	23	23	23
24	24	24	24	24	24
25	25	25	25	25	25
26	26	26	26	26	26
27	27	27	27	27	27
28	28	28	28	28	28
29	29	29	29	29	29
30	30	30	30	30	30
31	31	31	31	31	31
32	32	32	32	32	32
33	33	33	33	33	33
34	34	34	34	34	34
35	35	35	35	35	35
36	36	36	36	36	36
37	37	37	37	37	37
38	38	38	38	38	38
39	39	39	39	39	39
40	40	40	40	40	40
41	41	41	41	41	41
42	42	42	42	42	42
43	43	43	43	43	43
44	44	44	44	44	44
45	45	45	45	45	45
46	46	46	46	46	46
47	47	47	47	47	47
48	48	48	48	48	48
49	49	49	49	49	49
50	50	50	50	50	50
51	51	51	51	51	51
52	52	52	52	52	52
53	53	53	53	53	53
54	54	54	54	54	54
55	55	55	55	55	55
56	56	56	56	56	56
57	57	57	57	57	57
58	58	58	58	58	58
59	59	59	59	59	59
60	60	60	60	60	60
61	61	61	61	61	61
62	62	62	62	62	62
63	63	63	63	63	63
64	64	64	64	64	64
65	65	65	65	65	65
66	66	66	66	66	66
67	67	67	67	67	67
68	68	68	68	68	68
69	69	69	69	69	69
70	70	70	70	70	70
71	71	71	71	71	71
72	72	72	72	72	72
73	73	73	73	73	73
74	74	74	74	74	74
75					

CUM. DOSE (RADS) :	0		30K		75K	
	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS						
I1H(MAX)	1.382		1.828		2.14	
I1L(MAX)	14.50		14.80		28.4	
TDD(MAX)	351		329		FAIL	
THS(MAX)	4.58		FAIL		FAIL	
END						

PARAMETERS  
REMARKS: CONTINUATION FROM RECORD 3072.

**GENERIC PART NUMBER:** 582

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
582	SAMP/HOLD AMPLIFIER	BI-FET	401-2	3210

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
AD	AD582		INSAT PCC 860

LDC	RAD.	TYPE	PART QTY.	BIAS
UNK	C0-60	5	V+=7.5V.	V--=7.5V

CUM. DOSE(RADS) :	O	700K	800K	900K	1MEG
PARAMETERS	MEAN SD	MEAN SD	MEAN SD	MEAN SD	MEAN SD
D COS MV	1.600 D 1.140	0.0 0.0	0.0 0.0	0.0 0.0	-1.36 1.513
I BT MA	-1.14 1.342	.0600 .0894	.0600 .0600	.060C .0894	-1.04 .0548

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
582	SAMPLE/HOLD	JFET	1001	5000

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ANALOG DEVICES	AD582		TRW

LDC	RAD.	TYPE	PART QTY.	BIAS
8101	CO-60	4	V+=12V. V=-12V. 8KHZ SQ WAVE (0+5V) TO SAMPLE *	

CUM. DOSE (RADS):		0		30K		100K		300K		1MEG	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOL	1HZ DB	102.4	0.31	102.1	0.26	100.9	0.62	98.45	0.51	97.15	0.58
AVOL	1KHZ DB	43.15	0.48	42.68	0.21	41.28	0.39	38.65	0.68	37.33	0.89
AVOL	5KHZ DB	29.10	0.24	28.55	0.24	27.05	0.42	22.95	1.58	21.00	1.72
IOS	NA	-118.	106.1	-84.7	76.91	-43.6	62.77	-68.1	75.79	-65.9	99.96
IB	UA	1.508	0.196	1.593	0.177	1.525	0.173	1.420	0.163	1.628	0.156
I VOS	MV	0.602	3.828	-0.45	1.632	-0.05	0.891	0.192	2.238	-0.38	2.135
IDROOP	PA	-34.6	32.68	-22.1	28.95	4.35	32.41	-1.05	78.01	-80.8	257.9

REMARKS: \*SWITCH, 100 HZ (10V P-P) SINE WAVE TO SAMPLE INPUT.

GENERIC PART NUMBER: 582

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
590	TEMP. TRANSDUCERS	BIPOLAR	1015	5140

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ANALOG DEVICES	AD590JH		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
CO-60	10	VDD=+10V.	

CUM. DOSE (RADS): 0 .73MEG 1.0MEG 1.5MEG 1.8MEG

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ERROR (DEGREES CENTIGRADE)	2.00	0.460	2.42	0.515	2.97	0.544	3.60	0.589

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
6N134	OPTOCOUPLER	BIPOLAR	24-43	3840

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HEWLETT PACKARD	6N134	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
8012	CO-60	5	VDD=5V

CUM. DOSE (RADS): 0 30K 100K 300K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D I/O(.25)MA	- .004	0.006	0.005	0.001	0.010	0.005		
D I/O(2.0)MA	- .064	0.073	0.122	0.120	0.611	0.534		
D I/O(5.0)MA	- .609	0.459	0.265	0.202	0.942	0.686		

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
6N134	DUAL-CH OPTOCOUPLER	BIPOLAR	1029	5310

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HEWLETT-PACKARD	6N134		TRW

LDC RAD. TYPE PART QTY. BIAS  
 7815 CO-60 10 PINS: 15@5V.; 14.12 VIA 500HMS TO 5V.; 2.6.10@GND

CUM.DOSE(RADS): 0 300K 500K 750K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VF	1.511	0.003	1.513	0.005	1.515	0.005	1.515	0.005
IR	0.5	0	0.509	0.003	0.5	0	0.51	0
VOL	354.9	28.54	345.4	30.26	346.0	31.03	344.0	31.64
IOH	21.02	3.923	11.69	3.001	12.14	5.267	13.59	7.255
TPHL	34.51	5.004	32.51	3.629	34.29	5.409	34.27	5.423
TPLH	34.45	0.945	36.95	0.878	37.13	0.710	37.74	0.912

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
6504	(4K) x (1) RAM	CMOS	23	3920

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	H58504RH		LITTON GC

LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO-60 3 5.5 V

CUM.DOSE(RADS): 0 50K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ACC	NS	120.0			100.0			
ADD VIL	V	1.230			1.230			
ADD VIH	V	3.470			3.180			
IOL	MA	10.23			10.23			
IOH	MA	-3.77			-3.77			

REMARKS:

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GENERIC PART NUMBER: 6504

GENERIC PART NUMBER: 6504  
 FUNCTION: (4K) X (1) RAM  
 TECHNOLOGY: CMOS  
 REF. NO.: 23  
 RECORD: 3930

MANUFACTURER: HARRIS  
 PART NUMBER: HS6504RH  
 SPECIFICATION: LITTON GC  
 DATA SOURCE: LITTON GC

LDC RAD. TYPE: PART QTY. BIAS  
 UNK. CO-60 3 5 V

CUM. DOSE (RADS): 0 50K  
 PARAMETERS: MEAN SD MEAN SD MEAN SD MEAN SD  
 ACC NS 133.0 107.0  
 DATA RET V 2.760 1.720  
 ADD IL V 1.150 1.100  
 ADD IH V 3.000 2.700  
 IOL .4 MA 9.700 10.23  
 IOH .4 MA -3.95 -3.65

REMARKS:

GENERIC PART NUMBER: 6504  
 FUNCTION: (4K) X (1) RAM  
 TECHNOLOGY: CMOS  
 REF. NO.: 23  
 RECORD: 3940

MANUFACTURER: HARRIS  
 PART NUMBER: HS6504RH  
 SPECIFICATION: LITTON GC  
 DATA SOURCE: LITTON GC

LDC RAD. TYPE: PART QTY. BIAS  
 UNK. CO-60 3 4.5 V

CUM. DOSE (RADS): 0 50K  
 PARAMETERS: MEAN SD MEAN SD MEAN SD MEAN SD  
 ACC NS 154.0 120.0  
 ADD VIL V 1.120 1.080  
 ADD VIH V 2.580 2.380  
 IOL .4 MA 8.820 10.03  
 IOH .4 MA -3.73 -3.38

REMARKS:

GENERIC PART NUMBER: 6504

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\*\*\*\*\*  
 GENERIC PART NUMBER: 6504  
 \*\*\*\*\*  
 FUNCTION (4K) X (1) RAM  
 TECHNOLOGY CMOS  
 REF. NO. RECORD 23 3950

\*\*\*\*\*  
 MANUFACTURER HARRIS  
 PART NUMBER HS6504RH  
 SPECIFICATION  
 DATA SOURCE LITTON GC

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO-60 5 5.5 V

CUM. DOSE (RADS): 0 20K  
 \*\*\*\*\*  
 PARAMETERS  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 ACC NS 123.0 110.0  
 ADD VIL V 1.490 1.430  
 ADD VIH V 3.240 2.910  
 IOL .4 MA 10.23 10.23  
 IOH .4 MA -3.88 -3.77

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 6504  
 \*\*\*\*\*  
 FUNCTION (4K) X (1) RAM  
 TECHNOLOGY CMOS  
 REF. NO. RECORD 23 3960

\*\*\*\*\*  
 MANUFACTURER HARRIS  
 PART NUMBER HS6504RH  
 SPECIFICATION  
 DATA SOURCE LITTON GC

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO-60 5 5 V

CUM. DOSE (RADS): 0 20K  
 \*\*\*\*\*  
 PARAMETERS  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 ACC NS 137.0 121.0  
 DATA RET V 2.800 2.270  
 ADD VIL V 1.320 1.250  
 ADD VIH V 2.780 2.580  
 IOL .4 MA 9.070 9.540  
 IOH .4 MA -3.70 -3.55

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
6504	(4K) X (1) RAM	CMOS	23	3970

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HS6504RH		LITTON GC

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	5	4.5V

CUM. DOSE (RADS): 0 20K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ACC	NS	160.0	137.0					
ADD VIL	V	1.210	1.180					
ADD VIH	V	2.430	2.260					
IDL .4	MA	8.090	8.960					
IOH .4	MA	-3.49	-3.31					

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
6508	1024X1 RAM	CMOS	1-36	3820

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
INL	IM6508		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
NONE	CO-60	3	VCC=5V.

CUM. DOSE (RADS): 0 .3K 1.0K 3.0K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ICC (MAX)	UA	0.045	0.024	2100	11000			
MARCH	PASS	PASS	PASS	PASS	FAIL			
GALPAT	PASS	PASS	PASS	PASS	FAIL			

REMARKS: MEAN = WORST-CASE VALUE (NOT AVERAGE).

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\*\*\*\*\*  
 GENERIC PART NUMBER: 6508  
 FUNCTION: 1024X1 RAM  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 1-35 3830

\*\*\*\*\*  
 MANUFACTURER: INL  
 PART NUMBER: IM6508  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 7529 CO-60 3 VCC=5V.

CUM. DOSE (RADS): 0 .3K 1.0K 3.0K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 ICC (MAX) UA .0036 480 27000  
 MARCH PASS PASS FAIL  
 R/W PING PONG PASS PASS FAIL

\*\*\*\*\*  
 REMARKS: MEAN = WORST-CASE PARAMETER VALUE (NOT AVERAGE).  
 \*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER: 6508  
 FUNCTION: 1024X1 RAM  
 TECHNOLOGY: CMOS  
 REF. NO. RECORD: 25-97 3850

\*\*\*\*\*  
 MANUFACTURER: HARRIS  
 PART NUMBER: HM9-6508-2  
 SPECIFICATION: AEROJET  
 DATA SOURCE: AEROJET

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 \* CO-60 12 +5V, DIAGONAL PATTERN STORED IN MATRIX.

CUM. DOSE (RADS): 0 10.0K 21.5K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 II \*\* 12PAS 12PAS 12PAS 12PAS  
 VOH1 12PAS 12PAS 12PAS 12PAS  
 VOH2 12PAS 12PAS 12PAS 12PAS  
 VOL1 12PAS 12PAS 12PAS 12PAS  
 VOL2 12PAS 12PAS 12PAS 12PAS  
 WAKPAT 12PAS 12PAS 12PAS 12PAS  
 GALPAT 12PAS 12PAS 12PAS 12PAS  
 REMARKS: \*703-15, 703-19, 703-14. \*\*IDD, IDD(1,2,3,4), HFE, IDOSE, TAC PASS ALL DOSES

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
6508	1024X1 RAM	CMDS	25-96	3880

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HM1-6508-2		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7841	C060	7	+5V

CUM. DOSE (RADS): 0 4K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
II *	PASS		PASS		PASS		PASS	
VJH1	PASS		PASS		PASS		PASS	
VOH2	PASS		PASS		PASS		PASS	
VOL1	PASS		PASS		PASS		PASS	
VOL2	PASS		PASS		PASS		PASS	
IDOSE	PASS		PASS		PASS		PASS	
TAC	PASS		PASS		PASS		PASS	

REMARKS: \*IDD, IDD1, IDD2, IDD3, IDD4, HFE, WAKPAT, GALPAT ALSO MEASURED AND PASSED.

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
6551	256-WORDX4-BIT RAM	CMDS	25-98	3860

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HM1-6551-2		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
* (2)	C0-60	7	+5V, DIAGONAL PATTERN.

CUM. DOSE (RADS): 0 \*\*

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
II **	7PASS		7PASS		7PASS		7PASS	
VOH1	7PASS		7PASS		7PASS		7PASS	
VOH2	7PASS		7PASS		7PASS		7PASS	
VOL1	7PASS		7PASS		7PASS		7PASS	
VOL2	7PASS		7PASS		7PASS		7PASS	
IDOSE	7PASS		7PASS		7PASS		7PASS	
TAC	7PASS		7PASS		7PASS		7PASS	

REMARKS: \*2 7734D; 5 7807. \*\*REMARKS AND PARAMETERS CONTINUED ON RECORD 3861.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
6551	256-WORDX4-BIT RAM	CMOS	25-98	3861

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HM1-6551-2		

LDC	RAD.	TYPE	PART	QTY.	BIAS

CUM. DOSE (RADS) :					
		0		**	
PARAMETERS		MEAN	SD	MEAN	SD
IDD *		7PASS			
HFE		7PASS			

FUNCTIONALITY	
(1)WAKPAT	7PASS
(2)GALPAT	7PASS

REMARKS: \*CONT. FROM REC. 3860. \*\*IRRADIATED UNTIL IT=2.4MA (DOSE=3.6-3.9 KRAD)

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
6551	256-WORDX4-BIT RAM	CMOS	25-99	3870

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
HARRIS	HM9-6551-2		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
725-4	CO-60	5	+5V, AND WITH A DIAGONAL PATTERN STORED IN MATRIX.

PARAMETERS	O						★+					
	MEAN	SD					MEAN	SD				
II *	5PASS						5PASS					
V0H1	5PASS						5PASS					
V0H2	5PASS						5PASS					
VOL 1	5PASS						5PASS					
VOL2	5PASS						5PASS					
IDOSE	5PASS						5PASS					
IAC	5PASS						5PASS					

REMARKS: \*CONTINUED ON REC. 3871. \*\*8.2K TO 10.0K (EXPOSED UNTIL II=2.4MA).

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\*\*\*\*\*  
GENERIC PART NUMBER    FUNCTION    TECHNOLOGY    REF. NO. RECORD  
-----  
6551    256-WORDX4-BIT RAM    CMOS    3871  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER    PART NUMBER    SPECIFICATION    DATA SOURCE  
-----  
HARRIS    HM9-6551-2  
\*\*\*\*\*

-----  
LDC    RAD. TYPE    PART QTY.    BIAS  
-----

CUM. DOSE(RADS):    0    \*\*  
-----  
PARAMETERS    MEAN    SD    MEAN    SD    MEAN    SD    MEAN    SD  
-----  
IDD \*    SPASS    SPASS  
IDD1,2,3,4    SPASS    SPASS  
HFE    SPASS    SPASS  
WAKPAT    SPASS    SPASS  
GALPAT    SPASS    SPASS  
FUNCTIONALITY    SPASS    SPASS  
-----

REMARKS: \*CONTINUATION FROM REC. 3870. \*\*SEE REMARKS ON REC. 3870.

\*\*\*\*\*  
GENERIC PART NUMBER    FUNCTION    TECHNOLOGY    REF. NO. RECORD  
-----  
6551    256X4 RAM    CMOS    98    3890  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER    PART NUMBER    SPECIFICATION    DATA SOURCE  
-----  
HARRIS    HS6551-RH    COMMERCIAL    JPL  
\*\*\*\*\*

-----  
LDC    RAD. TYPE    PART QTY.    BIAS  
-----  
8119B    CO-60    6    VCC=5.5V  
-----

CUM. DOSE(RADS):    0    20K    40K    80K    120K  
-----  
PARAMETERS    MEAN    SD    MEAN    SD    MEAN    SD    MEAN    SD  
-----  
VTH    V    2.04    1.69    1.41    .924    FAIL  
DTW    NS    --    -20    -26    -30    FAIL  
IOH    MA    -3.14    -2.97    -2.83    -2.32  
ICC    MA    5.81    7.37    17.6    25.8    41.2  
-----

REMARKS: PARAMETER DATA = WORST-CASE VALUES.

GENERIC PART NUMBER 6551  
FUNCTION 256X4 RAM  
TECHNOLOGY CMOS  
REF. NO. RECORD 97 3900  
MANUFACTURER HARRIS  
PART NUMBER HS6551  
SPECIFICATION COMMERCIAL  
DATA SOURCE JPL

LDC RAD. TYPE PART QTY. BIAS  
7909 CO-60 6 VCC=5.5V

CUM. DOSE (RADS): 0

PARAMETERS	MEAN	SD	4K	8K	10K	12K
VTH *	1.46		MEAN SD	MEAN SD	MEAN SD	MEAN SD
DTW *	NS		1.31	1.10	FAIL	FAIL
ICC *	MA		5	11	14	FAIL
			13.3	14.3	22.3	29.1

REMARKS: \* MEAN=WORST-CASE (NOT AVG.). \*\*VALIDITY QUESTIONABLE: VALUES HIGH.

GENERIC PART NUMBER 6551  
FUNCTION 256X4 RAM  
TECHNOLOGY CMOS  
REF. NO. RECORD 96 3910  
MANUFACTURER HARRIS  
PART NUMBER HM6551  
SPECIFICATION COMMERCIAL  
DATA SOURCE JPL

LDC RAD. TYPE PART QTY. BIAS  
8049 CO-60 6 VCC=5.5V

CUM. DOSE (RADS): 0

PARAMETERS	MEAN	SD	4K	8K	12K	14K
VTH	1.661		MEAN SD	MEAN SD	MEAN SD	MEAN SD
DTW	NS		1.383	1.126	FAIL	FAIL
ICC	UA		-4.0	-7.0	FAIL	FAIL
			1885	6220	11550	14700

REMARKS: PARAMETER DATA = WORST CASE VALUES.

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GENERIC PART NUMBER: 6611

\*\*\*\*\*  
 REF. NO. RECORD  
 TECHNOLOGY 3 3810  
 CMOS  
 DATA SOURCE  
 SPECIFICATION MOTOROLA  
 FUNCTION 256 X 4 PROM  
 PART NUMBER  
 HM9-6611AB2208  
 MANUFACTURER  
 HARRIS

LDC RAD. TYPE PART QTY. BIAS  
 8025 CO-60 6 PINS 4,5,6,13,14,15,16 AT 5V; PINS 1,2,3,7,8 AT 0V

CUM. DOSE (RADS):  
 0  
 3K 5K  
 MEAN SD MEAN SD MEAN SD  
 PARAMETERS  
 V 1.051 0.115 0.781 0.136 0.445 0.0345  
 VTN 13.91 23.46 114.4 150.8  
 ICCS 0.0 0.0 13.91 23.46 24.80 1.697  
 ISUP 22.67 3.163 24.23 3.800 .1160  
 D VTN\* V/KRAD .0933

REMARKS: \*THIS PARAMETER IS ACTUALLY DVTN/D(RADIATION).

\*\*\*\*\*  
 REF. NO. RECORD  
 TECHNOLOGY 24-28 4190  
 BIPOLAR  
 DATA SOURCE  
 SPECIFICATION ROCKWELL  
 COMMERCIAL  
 PART NUMBER  
 LM723  
 MANUFACTURER  
 NATIONAL

BIAS

V+=VC=20V

PART QTY.

8

LDC RAD. TYPE

8011 CO-60

CUM. DOSE (RADS):

0

30K 100K 300K

MEAN SD MEAN SD MEAN SD

PARAMETERS

D L/RG1-50MA%

D L/RG20-40 %

D REF/V

0.026 0.007 -0.025 0.008 -0.021 0.012

-0.019 0.012 -0.016 0.011 0.003 0.011

0.000 0.002 -0.001 0.003 -0.006 0.002

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 723  
 \*\*\*\*\*

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 \*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
723	VOLTAGE REG	BIPOLAR	26	4200

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
UNKNOWN.	723HC		IRT

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	10	V+=VC=15V

CUM. DOSE (RADS): 0 2M

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V(OUT)	V	5.169	.0311	5.138	.0210			

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
723	VOLT. REGULATOR	BIPOLAR	24-29	4210

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	LM723J	COMMERCIAL	ROCKWELL

LDC	RAD. TYPE	PART QTY.	BIAS
8007	CO-60	8	V+=VC=20V

CUM. DOSE (RADS): 0 30K 100K 300K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
D L/RG1-50MA%			0.877	0.343	0.932	0.283	-.093	0.148
D L/RG20-40V%			-.029	0.009	-.016	0.011	-.003	0.003
D REF/V			0.002	0.001	0.004	0.005	0.002	0.002

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 723  
 \*\*\*\*\*

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\*\*\*\*\*  
 GENERIC PART NUMBER 723  
 FUNCTION VOLT. REGULATOR  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 24-30 4220  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER FAIRCHILD  
 PART NUMBER LM723H  
 SPECIFICATION COMMERCIAL  
 DATA SOURCE ROCKWELL  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 8008A CO-60 8 V+=VC=20V  
 \*\*\*\*\*

CUM. DOSE (RADS): 0  
 30K 100K 300K  
 MEAN SD MEAN SD MEAN SD  
 PARAMETERS  
 D L/RG1-50MA% -0.11 0.044 -1.17 0.417 -0.18 0.034  
 DL/RG20-40V % 0.028 0.027 0.027 0.021 0.038 0.024  
 D REF/V 0.000 0.001 -0.000 0.002 0.003 0.003  
 \*\*\*\*\*

REMARKS:  
 \*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER 723  
 FUNCTION VOLT REGULATOR  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 24-31 4230  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER FAIRCHILD  
 PART NUMBER LM723HM  
 SPECIFICATION COMMERCIAL  
 DATA SOURCE ROCKWELL  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 7936 CO-60 8 V+=VC=20V  
 \*\*\*\*\*

CUM. DOSE (RADS): 0  
 30K 100K 300K  
 MEAN SD MEAN SD MEAN SD  
 PARAMETERS  
 D L/RG1-50MA% 0.003 0.062 -1.09 0.216 -0.48 0.051  
 D L/RG20-40V % -0.005 0.009 0.002 0.010 0.008 0.010  
 D REF/V 0.002 0.001 0.003 0.001 0.007 0.001  
 \*\*\*\*\*

REMARKS:  
 \*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
723	VOLTAGE REGULATOR	BIPOLAR	9	4310

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	LM723 (10201BIA)		MOTOROLA

LDC	RAD. TYPE	PART QTY.	BIAS
7804	CO-60	4	VCC=21.5

CUM. DOSE (RADS): 0 50K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V0 RL=INF V	12.01	.0274	12.01	.0285				
V0 RL=1.2K V	12.01	.0272	12.01	.0284				
VREF V	7.145	.0155	7.147	.0162				
STDBY I MA	1.968	.0746	1.954	.0837				
V9 RL=1.2K V	13.33	.0336	13.34	.0352				
V6 RL=1.2K V	12.02	.0267	12.02	.0283				

REMARKS: PACKAGE IS "TO" STYLE CAN.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
723	VOLTAGE REGULATOR	BIPOLAR	1012	5110

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	UA723		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
7906	CO-60	5	V+=VC=20V, V-=GND, VO=CL=CS TO GND VIA 5.1K.

CUM. DOSE (RADS): 0 50K 100K 300K 1MEG

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V	7.271	0.014	7.272	0.014	7.273	0.014	7.275	0.014
VREF MV	0.48	0.15	1.02	0.38	1.32	0.44	2.42	0.78
LOAD REG MV	7.38	0.69	7.76	0.67	8.10	0.54	8.52	0.62
LINE REG MV								

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
725	OP AMP	BIPOLAR	98	4300

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NS	LM725AH		WESTINGHOUSE

LDC	RAD. TYPE	PART QTY.	BIAS
923	CO-60	5	VS=+/-15V

CUM. DOSE (RADS): 0 400K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIO	-1.43	.2499	-1.27	.2776				
IIO	26.00	5.292	25.20	1.483				
IIB	16.40	.9618	13.50	1.225				
F1	427.0	52.15	317.0	39.78				
F2	1.022	.1357	.8700	.1241				

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
734	VOLTAGE COMPARATOR	BIPOLAR	25-100	4290

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FSC	UA734DM		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7639	CO-60	5	NO INFORMATION FURNISHED.

CUM. DOSE (RADS): 0 13K 52K 170K 360K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIO	5PASS		5PASS		1FAIL		1FAIL	
IB+	2FAIL		2FAIL		1FAIL		1FAIL	
IB-	2FAIL		1FAIL		2FAIL		1FAIL	
IIO	3FAIL		4FAIL		2FAIL		5FAIL	
ICC	5PASS		5PASS		5PASS		5PASS	
IEE	5PASS		5PASS		5PASS		5PASS	

REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER 741  
 FUNCTION OP AMP  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 66 4010  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER INTERSIL  
 PART NUMBER ICL741MTH  
 SPECIFICATION  
 DATA SOURCE IRT CORP  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO-60  
 1ST TEST: VS=15V, -15V; 2ND TEST: VS=5V, -5V  
 \*\*\*\*\*

CUM. DOSE (RADS): 0 82K 300K 360K  
 \*\*\*\*\*  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 VIC MV -1.20 4.50 FAIL 0.0  
 IIO NA 1.70 5.00 FAIL 4.700  
 IB NA 28.00 85.00 FAIL 164.0  
 IQ MA 1.50 FAIL 1.40  
 GBW KHZ 1115. 1104. FAIL 1201.  
 \*\*\*\*\*

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER 741  
 FUNCTION OP-AMP  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 24-32 4240  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER NATIONAL  
 PART NUMBER LM741F  
 SPECIFICATION COMMERCIAL  
 DATA SOURCE ROCKWELL  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 8032 CO-60 7 V+=15V, V=-15V, NONINV-INPUT=5V, INV-INPUT=OUTPUT  
 \*\*\*\*\*

CUM. DOSE (RADS): 0 30K 100K 300K  
 \*\*\*\*\*  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD  
 D VOS MV -.095 0.056 -.064 0.186 -.447 0.243  
 D IOS NA -.076 0.187 -.560 0.370 -2.16 1.422  
 D IIB NA 19.00 1.916 60.99 7.356 186.4 22.36  
 \*\*\*\*\*

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
741	OP-AMP	BIPOLAR	17	4320

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	LM741		MOTOROLA

LDC	RAD.	TYPE	PART	QTY.	BIAS
7846	CO-60	2			VS=+/-20V. RL=2K. VIN=VO. VIN+=3V

CUM. DOSE (RADS)	PARAMETERS	0			25K			50K		
		MEAN	SD		MEAN	SD		MEAN	SD	
	AVDL	K	535.5	50.21	378.5	30.41	171.5	54.45		
	CMR	DB	92.00	0.000	92.00	0.000	89.00	4.243		
	PSRR	DB	100.0	8.485	98.50	4.950	92.00	1.414		
	V10	MV	.9850	.9263	1.420	1.032	2.775	1.379		
	I1IN	NA	15.70	.7071	58.25	15.20	93.50	28.99		
	I110	NA	.100	.4243	.2500	1.768	1.70	3.253		
	ICC	MA	2.000	.0707	1.875	.0354	1.775	.0354		

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
741	OP AMP	BIPOLAR	1013	5120

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	UA741		TRW

LDC	RAD.	TYPE	PART	QTY.	BIAS
7840A	C0-60	4			V+=15V. V=-15V. VIN=1V(P-P) 1KHZ. RTN=10K. RI=5K *

CUM. DOSE (RADS):		0			10K			20K			50K		
PARAMETERS		MEAN	SD		MEAN	SD		MEAN	SD		MEAN	SD	
NAVOL	1KHZ DB	57.88	0.556		57.75	0.569		57.70	0.622		57.10	1.283	
NAVOL	1HZ DB	114.9	1.219		114.3	1.605		113.5	1.771		**	**	
WDS	MV	0.895	1.383		1.097	1.412		1.264	1.475		31.88	27.37	
LOS	NA	3.153	2.784		3.657	2.970		3.841	3.177		22.40	11.41	
CB	NA	-24.1	4.718		-29.2	4.645		-32.8	4.195		-41.8	4.674	

REMARKS: \*\*AVOL @ 1HZ WAS NOT TESTED. \*RF=100K, NON-INV INPUT TO GND VIA 9.1K.

\*\*\*\*\*  
 GENERIC PART NUMBER 741  
 FUNCTION OP AMP  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 1030 5320  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER FAIRCHILD  
 PART NUMBER UA741AH  
 SPECIFICATION TRW  
 DATA SOURCE  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 8147 CO-60 5 V+=15V, V--15V, VIN=1V(P)(PP)1KHZ, NON-INV. INPUT \*

CUM. DOSE(RADS): 0

PARAMETERS	30K		60K		100K	
	MEAN	SD	MEAN	SD	MEAN	SD
AVOL 1HZ DB	116.4	0.48	106.6	1.32	97.13	5.08
VOS MV	1.349	0.513	2.254	1.509	13.19	19.66
IOS NA	1.082	1.795	6.753	0.777	26.77	25.67
IB NA	22.56	3.171	100.6	19.57	169.5	45.04
					266.9	13.12

\*\*\*\*\*  
 REMARKS: \*VIA 9.1K TO GND, RIN=10K, RF=100K, RL=5K.  
 \*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER 747  
 FUNCTION OP-AMP  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 24-33 4250  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER NATIONAL  
 PART NUMBER LM747F  
 SPECIFICATION COMMERCIAL  
 DATA SOURCE ROCKWELL  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 7914 CO-60 4 V+=15V, V--15V, NONINV-INPUT=5V, INV-INPUT=OUTPUT

CUM. DOSE(RADS): 0

PARAMETERS	30K		100K		300K	
	MEAN	SD	MEAN	SD	MEAN	SD
D VOS MV	-0.064	0.052	-0.438	0.680	-0.842	0.540
D IOS NA	0.265	0.394	89.09	124.9	99.29	134.8
D IID NA	14.44	7.295	138.8	67.92	324.1	84.63

\*\*\*\*\*  
 REMARKS:  
 \*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
747	OP-AMP	BIPOLAR	24-34	4260

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
TEXAS INST	LM747	COMMERCIAL	ROCKWELL

LDLC	RAD. TYPE	PART QTY.	BIAS
7927	CO-60	4	V+=15V, V=-15V, NONINV-INPUT=5V, INV-INPUT=OUTPUT

CUM. DOSE (RADS) :	0						30K						100K						300K					
	PARAMETERS			MEAN	SD		MEAN	SD		MEAN	SD		MEAN	SD		MEAN	SD		MEAN	SD				
D VOS	MV						-.029	0.037					1.078	2.131		1.449	0.793							
D IOS	NA						-.159	0.104					-1.30	2.385		-3.82	6.789							
D IIB	NA						5.925	0.778					15.86	2.424		40.41	9.070							

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
747	DUAL OP AMP	BIPOLAR	1031	5330

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	UA747		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
3110	C0-60	15	V+=12V, V=-8V, VIN=1V(PP) 1KHZ. NON-INV INPUT TO *

PARAMETERS		0		10K		20K		50K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
AVOL	1HZ	110.0	4.108	99.93	3.939	94.64	4.387	88.50	5.521
WOS	MV	0.744	0.836	1.727	0.931	2.694	1.346	4.724	2.153
I05	NA	0.640	1.621	3.895	6.391	9.660	13.19	19.29	11.54
IB	NA	41.94	14.27	98.06	27.72	135.9	46.78	292.9	68.22

REMARKS: \*GND VIA 9.1K, RIN=10K, RF=100K, RL=5K.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
7520	10 BIT D/A	CMOS	68-1	4090

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
UNK.	MP7520		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	C060	5	UNK.

CUM. DOSE (RADS): 0 3.1K 6.1K 11K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
I00(+10V) UA	0.0	0.0	0.0	0.0	0.0	0.0	0.560	1252
I00(-10V) UA	0.0	0.0	0.0	0.0	0.0	0.0	-0.062	1386
I01(+10V) UA	873.1	30.89	873.2	30.95	872.5	30.89	873.3	30.89
I01(-10V) UA	-873.	30.92	-873.	30.94	-873.	30.91	-873.	31.03

(SEE REMARKS)

REMARKS: I00=I(OUT) W/ALL INPUT BITS=0; I01 SIMILAR. (+10V), (-10V) ARE REF V'S.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
7520	10 BIT D/A	CMOS	68-1	4100

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
UNK.	AD7520		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	C060	5	UNK.

CUM. DOSE (RADS): 0 4K 8K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
I00(+10V) UA	0.0	0.0	0.260	0.321	166.5	363.7		
I00(-10V) UA	0.0	0.0	-0.12	0.164	-165.	359.7		
I01(+10V) UA	752.9	40.9	953.0	40.57	952.7	40.48		
I01(-10V) UA	-953.	40.45	-953.	40.61	-953.	40.52		

(SEE REMARKS)

REMARKS: I00=I(OUT) W/ALL INPUT BITS=0; I01 SIMILAR. (+10V), (-10V) ARE REF V'S.

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GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF.NO. RECORD  
-----  
7520      10 BIT D/A      CMOS      67      4110

MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
UNK.      MP7520           IRT CORP

LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
UNK.      CO-60      UNK      UNK.

CUM.DOSE(RADS):      0      3.1K      6.1K      11K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
I00(+10V) UA      0.0      0.0      0.0      0.0      0.0      0.0      .0560      .1252  
I00(-10V) UA      0.0      0.0      0.0      0.0      0.0      0.0      -.062      .1386  
I01(+10V) UA      873.1      30.09      873.2      30.09      872.5      30.89      873.3      30.88  
I01(-10V) UA      -873.      30.09      -873.      30.09      -873.      30.89      -873.      31.03  
(SEE  
REMARKS)

REMARKS: I00=I(OUT) W/ALL INPUT BITS=0; I01 SIMILAR. (+10V), (-10V) ARE REF V'S.

GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF.NO. RECORD  
-----  
7520      10 BIT D/A      CMOS      67      4130

MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
UNK      AD7520           IRT CORP

LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
UNK.      CO-60      UNK      UNK.

CUM.DOSE(RADS):      0      4K      8K  
-----  
PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
-----  
I00(+10V) UA      0.0      0.0      .0300      .0300      166.9      363.5  
I00(-10V) UA      0.0      0.0      -.030      .0400      -166.      359.4  
I01(+10V) UA      952.9      40.48      953.0      40.57      952.7      40.48  
I01(-10V) UA      -953.      40.45      -953.      40.61      -953.8      154.8  
(SEE  
REMARKS)

REMARKS: I00=I(OUT) W/ALL INPUT BITS=0; I01 SIMILAR. (+10V), (-10V) ARE REF V'S.

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GENERIC PART NUMBER		FUNCTION	TECHNOLOGY	REF. NO.	RECORD
7520		10-BIT D/A CONVERTER	CMOS	67	4140
MANUFACTURER		PART NUMBER	SPECIFICATION	DATA SOURCE	
UNK.		MP7520		IRT CORP	

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	UNK	UNK.

CUM. DOSE (RADS): 0

PARAMETERS	0		3.1K		6.1K		11K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
100(+10V) UA	0.0	0.0	0.0	0.0	0.0	0.0	0.0560	0.1252
100(-10V) UA	0.0	0.0	0.0	0.0	0.0	0.0	0.062	0.1386
101(+10V) UA	873.1	30.09	873.2	30.90	872.5	30.89	873.3	30.88
101(-10V) UA	-873.3	30.09	-873.3	30.90	-873.3	30.89	-873.3	31.03

(SEE REMARKS)

REMARKS: 100=I(OUT) W/ALL INPUT BITS=0; 101 SIMILAR. (+10V), (-10V) ARE REF V'S.

GENERIC PART NUMBER		FUNCTION	TECHNOLOGY	REF. NO.	RECORD
7521		12 BIT DIA	CMOS	67-1	4030
MANUFACTURER		PART NUMBER	SPECIFICATION	DATA SOURCE	
UNK.		AD7521		IRT CORP	

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO60	5	UNK..

CUM. DOSE (RADS): 0

PARAMETERS	0		4K		8K	
	MEAN	SD	MEAN	SD	MEAN	SD
100(+10V) UA	0.0	0.0	0.100	0.122	5.282	4.496
100(-10V) UA	0.0	0.0	0.160	0.207	6.060	4.982
101(+10V) UA	1135.	241.3	1134.	241.2	1134.	241.4
101(-10V) UA	-114.	241.3	-11.3	232.2	-113.	241.4

(SEE REMARKS)

REMARKS: 100=I(OUT) W/ALL INPUT BITS=0; 101 SIMILAR. (+10V), (-10V) ARE REF V'S.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
7521	12 BIT D/A	CMOS	67-1 4040

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
UNK.	MP7521		

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.		5	UNK.

CUM. DOSE (RADS): 0 3.7K 8K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
100(+10V) UA	0.0	0.0	0.0	0.0	0.060	.0055		
100(-10V) UA	0.0	0.0	0.0	0.0	0.0	0.0		
101(+10V) UA	866.3	29.40	859.9	29.17	865.6	28.88		
101(-10V) UA	-866.	29.39	-865.	28.83	-866.	28.88		

(SEE REMARKS)

REMARKS: 100=I(OUT) W/ALL INPUT BITS=0; 101 SIMILAR. (+10V), (-10V) ARE REF V'S.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
7521	12-BIT D/A CONVERTER	CMOS	68 4070

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
UNK.	MP7521		IRT CORP

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	UNK	UNK.

CUM. DOSE (RADS): 0 3.7K 7.9K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
100(+10V) UA	0.0	0.0	0.0	0.0	0.060	.0055		
100(-10V) UA	0.0	0.0	0.0	0.0	0.0	0.0		
101(+10V) UA	866.0	29.00	865.0	29.00	865.0	28.00		
101(-10V) UA	-866.	29.00	-865.	29.00	-865.	28.00		

(SEE REMARKS)

REMARKS: 100=I(OUT) W/ALL INPUT BITS=0; 101 SIMILAR. (+10V), (-10V) ARE REF V'S.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
7521	12 BIT D/A	CMOS	68	4080

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
UNK.	AD7521		IRT CORP

LDC	RAD.	TYPE	PART	QTY.	BIAS
UNK.	CO-60		UNK		UNK.

CUM. DOSE (RADS) :	0			4K			8K		
	MEAN	SD		MEAN	SD		MEAN	SD	
PARAMETERS									
I(00(+10V) UA	0.0	0.0		0.100	0.120		5.282	4.495	
I(00(-10V) UA	0.0	0.0		-0.16	0.210		-6.06	4.981	
I(01(+10V) UA	1135.	241.3		1134.	241.2		1134.	241.4	
I(01(-10V) UA	-113.	241.3		-113.	241.2		-113.	241.1	

REMARKS: IOO=I(OUT) W/ALL INPUT BITS=O; IOI SIMILAR. (+1OV). (-1OV) ARE REF V'S.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
7521	12-BIT D/A CONVERTER.	CMOS	1-13	4170

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD7521		JPL

LDC	RAD.	TYPE	PART	QTY.	BIAS
7825	CO-60		2		VDD=15V. VREF=15V

CUM. DOSE (RADS)	PARAMETERS	0		3K		10K		20K		30K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
	VTHL(MIN)	1.790		1.550							
	VTHH(MIN)	1.810		1.770		FAIL		FAIL		FAIL	
	1-LEAKAGE	1.715		2.140		FAIL		FAIL		FAIL	
	IDD(MAX)	1.485		1320		65.40		327K		1200	
	IIH(MAX)	2.06		2.01		2.02		2.02		2.02	
	NONLIN(MAX) %	.0172		.0181		.1905		.1467		.1467	

REMARKS: MEAN = WORST-CASE PARAMETER VALUE (NOT AVERAGE) @VDD=15V, VREF=10V.

GENERIC PART NUMBER: 7521

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
7570	10-BIT A/D CONVRTR.	CMOS	1-137 3980

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MP1	MP7570		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7803	CO-60	2	VCC=5V, VDD=15V, VREF=-10V.

CUM.DOSE(RADS): 0 3.0K 6.0K 20.0K 40.0K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ANALOG OUTPUT										
LEAKAGE I										
(MAX) NA	1.100		1.200		0.900		543			FAIL
IOH (MAX) NA	0.800		1.250		5.80		19.55			FAIL
IOL (MAX) NA	0.555		1.650		0.500		2.05			FAIL

REMARKS: MEAN = WORST-CASE PARAM. VALUE (NOT AVG.). \*CONTINUED ON REC. 3981.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
7570	10-BIT A/D CONVRTR.	CMOS	1-137 3981

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MP1	MP7570		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM.DOSE(RADS): 0 3.0K 6.0K 20.0K 40.0K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IIL (MAX) UA	0.001		0.002		0.002		0.002			FAIL
IIH (MAX) UA	.0009		.0010		.0007		.0009			FAIL
VOL (MAX) V	0.345		0.341		0.343		0.351			FAIL
CLOCK FMAX										
(MIN) KHZ	456		829		814		100			FAIL

REMARKS: CONTINUATION OF RECORD 3980. \*CONTINUED ON RECORD 3982.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
7570	10-BIT A/D CONVRTR.	CMOS	1-137	3982

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MPI	MP7570		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS):		0		3.0K		6.0K		20.0K		30.0K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
RELATIVE ACCURACY												
LSB (MAX)	0.409		0.498		0.569		25.5					FAIL
DIFFERENTIAL												
NONLIN (MAX)	0.751		0.751		0.751		1.751					FAIL

REMARKS: CONTINUATION OF RECORD 3981. \*CONTINUED ON RECORD 3983.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
7570	10-BIT A/D CONVRTR.	CMOS	1-137	3983

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
MPI	MP7570		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS):		0		3.0K		6.0K		20.0K		30.0K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V <sub>OH</sub> (MIN)	4.81		4.80		4.79		4.73					FAIL
TON HBE	NS	528	590		680		1540					FAIL
TON LBE	NS	697	766		873		6000					FAIL
TOFF HBE	NS	310	315		330		1860					FAIL
TOFF LBE	NS	338	325		330		865					FAIL

REMARKS: CONTINUATION OF RECORD 3982.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
7570	10-BIT A/D CONVRTR.	CMOS	1-14	4180

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD7570		JPL

LDC	RAD. TYPE	PART QTY.	BIAS
7844	CO-60	2	VDD=15V, VCC=5V, VREF=-10V.

CUM. DOSE (RADS) :		0		3.0K		10.0K		15.0K		20.0K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ANALOG OUTPUT											
LEAKAGE I	NA	0.600		0.800		786		8350		FAIL	
LEAKAGE MAX	NA	0.600		0.950		5.00		12.5		FAIL	
ILEAKOHMAX	NA	0.450		0.500		42.1		77.3		FAIL	
IIIL (MAX)	UA	0.010		0.013		0.076		0.235		FAIL	
IIIH (MAX)	UA	0.450		0.500		0.600		0.670		FAIL	

REMARKS: MEAN = WORST-CASE PARAMETER VALUE (NOT AVERAGE). \*CONT. ON REC. 4181

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
7570	10-BIT A/D CONVRTR.	CMOS	1-14	4181

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD7570		

LDC	RAD.	TYPE	PART QTY.	BIAS
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
10	10	10	10	10
11	11	11	11	11
12	12	12	12	12
13	13	13	13	13
14	14	14	14	14
15	15	15	15	15
16	16	16	16	16
17	17	17	17	17
18	18	18	18	18
19	19	19	19	19
20	20	20	20	20
21	21	21	21	21
22	22	22	22	22
23	23	23	23	23
24	24	24	24	24
25	25	25	25	25
26	26	26	26	26
27	27	27	27	27
28	28	28	28	28
29	29	29	29	29
30	30	30	30	30
31	31	31	31	31
32	32	32	32	32
33	33	33	33	33
34	34	34	34	34
35	35	35	35	35
36	36	36	36	36
37	37	37	37	37
38	38	38	38	38
39	39	39	39	39
40	40	40	40	40
41	41	41	41	41
42	42	42	42	42
43	43	43	43	43
44	44	44	44	44
45	45	45	45	45
46	46	46	46	46
47	47	47	47	47
48	48	48	48	48
49	49	49	49	49
50	50	50	50	50
51	51	51	51	51
52	52	52	52	52
53	53	53	53	53
54	54	54	54	54
55	55	55	55	55
56	56	56	56	56
57	57	57	57	57
58	58	58	58	58
59	59	59	59	59
60	60	60	60	60
61	61	61	61	61
62	62	62	62	62
63	63	63	63	63
64	64	64	64	64
65	65	65	65	65
66	66	66	66	66
67	67	67	67	67
68	68	68	68	68
69	69	69	69	69
70	70	70	70	70
71	71	71	71	71
72	72	72	72	72
73	73	73	73	73
74	74	74	74	74
75	75	75	75	75
76	76	76	76	76
77	77	77	77	77
78	78	78	78	78
79	79	79	79	79
80	80	80	80	80
81	81	81	81	81
82	82	82	82	82
83	83	83	83	83
84	84	84	84	84
85	85	85	85	85
86	86	86	86	86
87	87	87	87	8

CUM.DOSE(RADS) :	0		3.OK		10.OK		15.OK		20.OK
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN SD

RELATIVE  
ACCURACY

ACCURACY.  
LSB (MAX)  
DIFFERENTIAL

NONLIN,  
LSB (MAX)

REMARKS: CONT

REMARKS: CONTINUATION FROM RECORD 4180. \*CONTINUED ON RECORD 4182.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
7570	10-BIT A/D CONVERTER.	CMOS	1-14	4182

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD7570		

LDC	RAD.	TYPE	PART QTY.	BIAS
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
10	10	10	10	10
11	11	11	11	11
12	12	12	12	12
13	13	13	13	13
14	14	14	14	14
15	15	15	15	15
16	16	16	16	16
17	17	17	17	17
18	18	18	18	18
19	19	19	19	19
20	20	20	20	20
21	21	21	21	21
22	22	22	22	22
23	23	23	23	23
24	24	24	24	24
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26	26	26	26	26
27	27	27	27	27
28	28	28	28	28
29	29	29	29	29
30	30	30	30	30
31	31	31	31	31
32	32	32	32	32
33	33	33	33	33
34	34	34	34	34
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36	36	36	36	36
37	37	37	37	37
38	38	38	38	38
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54	54	54	54	54
55	55	55	55	55
56	56	56	56	56
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60	60	60	60	60
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64	64	64	64	64
65	65	65	65	65
66	66	66	66	66
67	67	67	67	67
68	68	68	68	68
69	69	69	69	69
70	70	70	70	70
71	71	71	71	71
72	72	72	72	72
73	73	73	73	73
74	74	74	74	74
75	75	75	75	75
76	76	76	76	76
77	77	77	77	77
78	78	78	78	78
79	79	79	79	79
80	80	80	80	80
81	81	81	81	81
82	82	82	82	82
83	83	83	83	83
84	84	84	84	84
85	85	85	85	85
86	86	86	86	86
87	87	87	87	8

CUM. DOSE (RADS) :		0		3.0K		10.0K		15.0K		20.0K	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS											
VOL (MAX)	V	0.093		0.092		0.094		0.099		FAIL	
V <sub>OH</sub> (MIN)	V	4.930		4.925		4.895		4.840		FAIL	
CLOCK FMAX											
(MIN)	KHZ	576.0		620.0		102.0		125.0		FAIL	
TON HBE	NS	137.0		152.5		260.0		500.0		FAIL	
TON LBE	NS	147.0		160.0		287.0		FAIL		FAIL	

REMARKS: CONTINUATION FROM RECORD 4181. \*CONTINUED ON RECORD 4183.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
7570	10-BIT A/D CONVERTER.	CMOS	1-14	4183

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
ADI	AD7570		

LDC	RAD.	TYPE	PART	QTY.	BIAS
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15
16	16	16	16	16	16
17	17	17	17	17	17
18	18	18	18	18	18
19	19	19	19	19	19
20	20	20	20	20	20
21	21	21	21	21	21
22	22	22	22	22	22
23	23	23	23	23	23
24	24	24	24	24	24
25	25	25	25	25	25
26	26	26	26	26	26
27	27	27	27	27	27
28	28	28	28	28	28
29	29	29	29	29	29
30	30	30	30	30	30
31	31	31	31	31	31
32	32	32	32	32	32
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35	35	35	35	35	35
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38	38	38	38	38	38
39	39	39	39	39	39
40	40	40	40	40	40
41	41	41	41	41	41
42	42	42	42	42	42
43	43	43	43	43	43
44	44	44	44	44	44
45	45	45	45	45	45
46	46	46	46	46	46
47	47	47	47	47	47
48	48	48	48	48	48
49	49	49	49	49	49
50	50	50	50	50	50
51	51	51	51	51	51
52	52	52	52	52	52
53	53	53	53	53	53
54	54	54	54	54	54
55	55	55	55	55	55
56	56	56	56	56	56
57	57	57	57	57	57
58	58	58	58	58	58
59	59	59	59	59	59
60	60	60	60	60	60
61	61	61	61	61	61
62	62	62	62	62	62
63	63	63	63	63	63
64	64	64	64	64	64
65	65	65	65	65	65
66	66	66	66	66	66
67	67	67	67	67	67
68	68	68	68	68	68
69	69	69	69	69	69
70	70	70	70	70	70
71	71	71	71	71	71
72	72	72	72	72	72
73	73	73	73	73	73
74	74	74	74	74	74
75					

PARAMETERS	0		3.0K		10.0K		15.0K		20.0K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TI0FF HBE NS	535		542		605		FAIL		FAIL	
TI0FF LBE NS	528		534		568		FAIL		FAIL	
TI0DD (MAX) UA	0.009		1.000		625		3000		FAIL	
ICC (MAX) UA	0.046		0.144		34.6		138		FAIL	
ISK (MIN) MA	29.9		27.7		27.4		26.4		FAIL	
ISC (MIN) UA	1.400		1.150		0.545		0.180		FAIL	

REMARKS: CONTINUATION FROM RECORD 4182.

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\*\*\*\*\*  
 GENERIC PART NUMBER: 76  
 \*\*\*\*\*  
 FUNCTION: RF AMPLIFIER  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1-124 4150  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: MOTOROLA  
 PART NUMBER: MIC76  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 4 UNK.

CUM. DOSE (RADS): 0  
 30K 75K 150K 600K  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 PARAMETERS  
 GAIN DB 8.57 8.3 .2380 8.4 .2217 8.4 .2217 8.4 .1826  
 BIAS V 2.02 2.02 .0097 2.02 .0096 2.02 .0099 2.02 .0068  
 ANGLE DEG 16.5 15.5 1.994 17.5 1.274 19. 1.080 19. 1.377  
 IDRAIN MA 3.57 3.6 .0500 3.45 .0816 3.45 .0500 3.4 .0816

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 76  
 \*\*\*\*\*  
 FUNCTION: RF AMPLIFIER  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 1-125 4160  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: MOTOROLA  
 PART NUMBER: MIC76  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5MEV EL 4 UNK.

CUM. DOSE (RADS): 0  
 30K 75K 150K 600K  
 MEAN SD MEAN SD MEAN SD MEAN SD  
 PARAMETERS  
 GAIN DB 8.57 8.3 .1732 8.3 .1258 8.4 .2217 8.4 .1826  
 BIAS V 2.02 2. .0101 2.02 .0088 2.02 .0102 2.02 .0101  
 ANGLE DEG 16.5 15.1 1.664 17. .3202 19. 1.080 19. 1.127  
 IDRAIN MA 3.57 3.6 .0750 3.5 .0500 3.5 .0500 3.4 .0816

REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO.      RECORD  
 -----  
 7602      256 BIT PROM      BIPOLAR      25-101      4270  
 -----

\*\*\*\*\*  
 MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
 -----  
 HARRIS      HM1-7602-2           AEROJET  
 -----

\*\*\*\*\*  
 LDC      RAD. TYPE      PART QTY.      BIAS  
 -----  
 7894A      CO-60      5      UNK.  
 -----

\*\*\*\*\*  
 CUM. DOSE(RADS):      0      13.5K      58.5K      112K      328K  
 -----  
 PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
 -----  
 IR      5PASS           5PASS           5PASS           5PASS           5PASS  
 IF      5PASS           5PASS           5PASS           5PASS           5PASS  
 VOL      5PASS           5PASS           5PASS           5PASS           5PASS  
 IOH(E-BAR)      5PASS           5PASS           5PASS           5PASS           5PASS  
 ICC      5PASS           5PASS           5PASS           5PASS           5PASS  
 VCL      5PASS           5PASS           5PASS           5PASS           5PASS  
 (FUNCTIONAL)  
 REMARKS:  
 -----

\*\*\*\*\*  
 GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO.      RECORD  
 -----  
 78      SERIES VOLT REG      BIPOLAR      70      4020  
 -----

\*\*\*\*\*  
 MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
 -----  
 WA78GKC                IRT  
 -----

\*\*\*\*\*  
 LDC      RAD. TYPE      PART QTY.      BIAS  
 -----  
 UNK.      UNK.      UNK      VIN=15V, RL=60 OHMS, VO=12V, IO=200MA  
 -----

\*\*\*\*\*  
 CUM. DOSE(RADS):      0      100K      400K      1M  
 -----  
 PARAMETERS      MEAN      SD      MEAN      SD      MEAN      SD      MEAN      SD  
 -----  
 D VO(60,15 )V      0.043      0.0210      0.058      0.037      0.055      0.112  
 D VO(120-15)V      0.057      0.030      0.087      0.044      0.055      0.112  
 D VO(120-20)V      0.057      0.0250      0.097      0.039      0.063      0.107  
 D VO(60-20) V      0.053      0.020      0.085      0.040      0.060      0.110  
 -----

\*\*\*\*\*  
 REMARKS:  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO. RECORD
7800	DUAL LEVEL SHIFT	TTL	25-102 4280

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
NSC	DS7800H		AEROJET

LDC	RAD. TYPE	PART QTY.	BIAS
7616	CO-60	4	UNK.

CUM. DOSE (RADS): 0 58.5K 113K 329K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOL	4PASS		4PASS		4PASS		4PASS	
II	4PASS		4PASS		4PASS		4PASS	
IL	4PASS		4PASS		4PASS		4PASS	
IIH	4PASS		4PASS		4PASS		4PASS	
IIL	4PASS		4PASS		4PASS		4PASS	
ICCL	4PASS		4PASS		4PASS		4PASS	
ICCH	4PASS		4PASS		4PASS		4PASS	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. 'O. RECORD
7805	3-TERM POS VOLT REG	BIPOLAR	805-16 600

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	UA7805		TI

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	6	UNK.

CUM. DOSE (RADS): 0 12.5K 25K 50K 100K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	
LOAD REG	MV	13.33	1.033	28.17	1.607	23.83	1.211	24.42	1.268	25.00	1.426
VOUT	V	5.09	.0369	5.097	.0370	5.102	.0369	5.105	.0370	5.115	.0371
LINE REG	MV	1.167	.1506	1.250	.2106	2.000	.2557	2.583	.2904	3.484	.4247

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
7805	VOLTAGE REGULATOR	BIPOLAR	1036	5380

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	UA7805KM		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
F7714	CO-60	5	V+=+10V; PIN 2 @ 5V; CASE @ GND.

CUM. DOSE (RADS): 0 100K 300K 500K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VO@40V, .5A V	4.942	0.053	4.949	0.052	4.962	0.053	4.966	0.055
VO@7V, 0.5A V	4.942	0.053	4.949	0.052	4.962	0.053	4.966	0.055
VO@7V, 0.1A V	4.961	0.053	4.968	0.052	4.982	0.053	4.986	0.055
VO@25V, 0.1A V	4.961	0.053	4.968	0.052	4.982	0.053	4.986	0.055
VO@7V, 0.8A V	4.928	0.053	4.935	0.052	4.948	0.053	4.951	0.054
VO@10V, 5MA V	4.966	0.053	4.973	0.052	4.987	0.053	5.014	0.075
VO@10V, .5A V	4.942	0.053	4.949	0.052	4.962	0.053	4.988	0.074

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
8X300	MICROPROCESSOR	BIPOLAR	501-7	4340

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SIGNETICS	8X300		MARTIN

LDC	RAD. TYPE	PART QTY.	BIAS
2469	CO-60	5	UNK.

CUM. DOSE (RADS): 0 50K 100K 500K 1M

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TA NS	11.60	1.140	12.20	.8367	12.80	1.643	12.40	1.673		
TB NS	13.80	.8367	14.40	1.517	14.20	1.643	14.90	1.746		
TC NS	104.0	8.944	120.0	0.0000	122.0	10.96	120.0	14.14		
TD NS	4.400	.5477	4.000	0.0000	4.400	.5477	4.500	.5000		
TE NS	488.0	2.739	489.0	2.236	487.0	4.472	485.0	5.000		

REMARKS: NO PRE RAD DATA AVAILABLE

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\*\*\*\*\*  
 GENERIC PART NUMBER: 8X300  
 \*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
8X300	MICROCONTROLLER	TTL	1106	5860

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SIGNETICS	8X300		MARTIN

LDC	RAD. TYPE	PART QTY.	BIAS
2469	CO-60**	5	VCC=+5V

CUM. DOSE (RADS): 0 50K 100K 500K 1MEG

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TA NS	11.8	9.798	11.6	1.020	12.2	7.483	12.8	1.470	12.4	1.450
MCLK TO LBIN (MAX=35NS)										
TB NS	13.8	7.483	13.8	7.483	14.4	1.356	14.2	1.470	14.9	1.562
MCLK TO RBIN (MAX=35NS)										
--PARAMETERS	CONT.	ON	REC.	5861.						
REMARKS:	**AND LINAC.									

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
8X300	MICROCONTROLLER	TTL	1106	5861

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SIGNETICS	8X300		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE (RADS): 0 50K 100K 500K 1MEG

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TC NS	16	10.2	104	8.0	120	0.0	122	9.8	120	12.7
MCLK TO IVB5 (MAX=225NS)										
TD NS	4.20	0.400	4.40	0.490	4.00	0.000	4.40	0.490	4.50	0.447
MCLK TO WCIN CONTROL (MAX=25NS)										
REMARKS:	CONT. FROM REC. 5860. CONT. ON REC. 5862.									

\*\*\*\*\*  
 GENERIC PART NUMBER: 8X300  
 \*\*\*\*\*

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
BX300	MICROCONTROLLER	TTL	1106	5862

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SIGNETICS	8X300		

LDLC	RAD. TYPE	PART QTY.	BIAS
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10
11	11	11	11
12	12	12	12
13	13	13	13
14	14	14	14
15	15	15	15
16	16	16	16
17	17	17	17
18	18	18	18
19	19	19	19
20	20	20	20
21	21	21	21
22	22	22	22
23	23	23	23
24	24	24	24
25	25	25	25
26	26	26	26
27	27	27	27
28	28	28	28
29	29	29	29
30	30	30	30
31	31	31	31
32	32	32	32
33	33	33	33
34	34	34	34
35	35	35	35
36	36	36	36
37	37	37	37
38	38	38	38
39	39	39	39
40	40	40	40
41	41	41	41
42	42	42	42
43	43	43	43
44	44	44	44
45	45	45	45
46	46	46	46
47	47	47	47
48	48	48	48
49	49	49	49
50	50	50	50
51	51	51	51
52	52	52	52
53	53	53	53
54	54	54	54
55	55	55	55
56	56	56	56
57	57	57	57
58	58	58	58
59	59	59	59
60	60	60	60
61	61	61	61
62	62	62	62
63	63	63	63
64	64	64	64
65	65	65	65
66	66	66	66
67	67	67	67
68	68	68	68
69	69	69	69
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71	71	71	71
72	72	72	72
73	73	73	73
74	74	74	74
75	75	75	75
76	76	76	76
77	77	77	77
78	78	78	78
79	79	79	79
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82	82	82	82
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84	84	84	84
85	85	85	85
86	86	86	86
87	87	87	87
88	88	88	88
89	89	89	89
90	90	90	90
91	91	91	91
92	92	92	92
93	93	93	93
94	94	94	94
95	95	95	95
96	96	96	96
97	97	97	97
98	98	98	98
99	99	99	99
100	100	100	100

[illegible]

TE(5)	487 4.000	486 4.899	489 2.000	487 4.000	485 4.472
FUNCTIONALITY	5PASS	5PASS	5PASS	5PASS	5PASS

REMARKS: (5) TE: MCLK TO WC OUTPUT; SPECIFIED MAX = 525 NS.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
8021	OP AMP	BIPOLAR	25-103	4350

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
INTERSIL	ICL8021		AEROJET

LDC	RAD.	TYPE	PART	QTY.	BIAS
20052	CD-60		5		UNK.

PARAMETERS	0		12.5K		42.5K		133K		253K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VIO	5PAS		5PAS		5PAS		5PAS		5PAS	
IB	5PAS*		5PAS*		5PAS*		5PAS*		5PAS*	
IO	5PAS*		5PAS*		5PAS*		5PAS*		5PAS*	
IQ	5PAS*		5PAS*		5PAS*		5PAS*		5PAS*	
IBW	5PAS*		5PAS*		5PAS*		5PAS*		5PAS*	

REMARKS: \*ONE DEVICE HAD IB SLIGHTLY HIGHER THAN SPEC BEFORE AND AFTER IRRAD.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
82S11	1024 X 1 RAM	BIPOLAR	701-2	4330

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SIGNETICS	S82S11F		AFWL-TR-79-118

LDC	RAD. TYPE	PART QTY.	BIAS
UNK.	CO-60	10	VCC=5V

PARAMETERS	0		100K		300K		500K		1MEG	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ICC1	MA	81.90	81.00		79.70		78.90		76.40	
IDL	MA	43.10	42.40		41.80		40.90		41.10	
IOH	MA	17.40	17.40		17.30		17.20		17.60	
TAC	NS	26.00	27.00		26.90		30.40		31.90	

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
82S181	1024X8 BIPOLAR PROM	BIPOLAR	1058	5600

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SIGNETICS	S82S181		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
8117A	CO-60 + N*	5	VCC=+5V.

PARAMETERS	0		*N+200K	
	MEAN	SD	MEAN	SD
VOL17	MV	301.4	28.7	303.9
VOL16	MV	300.4	13.3	303.9
VOL15	MV	294.1	22.5	297.2
VOL14	MV	287.7	26.2	291.5
VOL13	MV	296.5	14.0	299.7
VOL11	MV	286.7	27.4	290.2

REMARKS: \*NEUTRON RAD. = 6.20E11 N/SQCM. \*\*CONTINUED ON RECORD 5601.

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
82S181	1024X8 BIPOLAR PROM	BIPOLAR	1058	5601

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
SIGNETICS	S82S181		

LDC	RAD. TYPE	PART QTY.	BIAS

CUM. DOSE(RADS): 0 \*N+200K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOL10 MV	295.3	26.3	298.7	28.8				
VOL9 MV	307.9	20.3	311.7	22.2				

REMARKS: CONTINUATION OF RECORD 5600.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
82S181	1024X8 BIPOLAR PROM	BIPOLAR	1059	5610

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
RAYTHEON	82S181		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
8002	CD-60 + N*	5	VCC=+5V.

CUM. DOSE(RADS): 0 \*N+200K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOL17 MV	223.4	12.93	224.5	11.79				
VOL16 MV	223.2	8.98	225.1	8.45				
VOL15 MV	222.4	13.63	224.2	11.36				
VOL14 MV	222.7	13.97	224.0	11.60				
VOL13 MV	221.8	13.37	222.9	12.76				
VOL11 MV	223.2	11.43	224.8	10.56				

REMARKS: \*NEUTRON RAD. = 6.20E11 N/SQCM. \*\*CONTINUED ON RECORD 5611.

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GENERIC PART NUMBER: 82S181

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\*\*\*\*\*  
 GENERIC PART NUMBER 82S181  
 FUNCTION 1024X8 BIPOLAR PROM  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 1059 5611  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER RAYTHEON  
 PART NUMBER 82S181  
 SPECIFICATION  
 DATA SOURCE  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS): 0 N+200K

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOL10 MV	226.2	13.21	228.5	12.15				
VOL9 MV	229.3	11.63	231.4	10.47				

REMARKS: \*CONTINUATION OF RECORD 5610.

\*\*\*\*\*  
 GENERIC PART NUMBER 82S181  
 FUNCTION 1024X8-BIT PROM  
 TECHNOLOGY BIPOLAR  
 REF. NO. RECORD 1072 5740  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER SIGNETICS  
 PART NUMBER S82S181  
 SPECIFICATION TRW  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS

\*\* CO-60 + N\* 5 VCC=+5V.

CUM. DOSE (RADS): 0

PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOL *** MV	291.3	23.65	305.1	29.23	312.6	29.14	309.0	24.50
VDH *** V	2.931	.0721	2.936	.0721	2.942	.0723	2.952	.0729
-IOS *** MA	29.21	3.096	29.05	3.096	28.96	3.097	28.84	3.098
ILHZO *** PA	222.9	184.3	95.45	310.1	3.025	421.9	45.57	395.9
ILHZI *** NA	1.271	.2685	1.424	.4041	1.260	.4629	1.256	.4962

CONTINUED ... ON REC. 5741

REMARKS: \*\*7901.7909. \*NEUTRON RAD.=6.E11N/SQCM. \*\*\*AVERAGE OVER 8 PINS.

\*\*\*\*\*  
 GENERIC PART NUMBER: 82S181  
 \*\*\*\*\*

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-----  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
82S181      1024X8-BIT PROM      BIPOLAR      1072      5741  
-----

-----  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
SIGNETICS      S82S181  
-----

-----  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----

CUM. DOSE (RADS):		0		N+100K		N+300K		N+500K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IIM *	NA	15.68	5.251	14.16	5.375	12.61	5.517	12.09	5.490
IIH *	NA	.8943	.2684	.9943	.4376	.8907	.5220	.8257	.4612
IIL *	UA	11.05	1.232	17.73	1.393	24.01	2.759	27.36	1.810
-VIC *	MV	901.7	10.56	913.3	18.56	911.1	20.68	899.8	13.37

\*\*\*\*\*  
REMARKS: CONTINUATION OF RECORD 5740.      \*AVERAGE OVER 14 PINS.  
\*\*\*\*\*

-----  
GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
8211      VOLT. DETECTOR/INDIC      BIPOLAR      6      4360  
-----

-----  
MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
INTERSIL      ICL8211MTY      MOTOROLA  
-----

-----  
LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
7913      CO-60      3      VCC=5V  
-----

CUM. DOSE (RADS):		0		3.2K		8K		16K		24K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
I8 MAX *	UA	43.66	3.035	41.25	2.143	37.60	1.034	33.32	.4258	28.56	1.164
IC MIN	UA	46.78	2.110	44.97	1.554	41.97	.7234	38.30	.4583	34.56	1.153

\*\*\*\*\*  
REMARKS: NEUTRON FIRST (1.65E12 N/SQCM.).      \*CURRENT @ PIN 8.  
\*\*\*\*\*

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\*\*\*\*\*  
 GENERIC PART NUMBER: 93L24  
 FUNCTION: 5 BIT COMPARATOR  
 TECHNOLOGY: TTL  
 REF. NO. RECORD: 25-104 4410  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: 93L24DM  
 PART NUMBER: 93L24DM  
 SPECIFICATION: AEROJET  
 DATA SOURCE: AEROJET  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO-60 5 UNK.  
 \*\*\*\*\*

CUM. DOSE (RADS): 0 19K 56K 140K 250K  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 VOH 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 VOL 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 II 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 IIH 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 IIL 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 IOS 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 ICC 5PASS 5PASS 5PASS 5PASS 5PASS 5PASS  
 REMARKS: TWO LDC: 7622, 1 PC; 7609, 4 PCS.  
 \*\*\*\*\*

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\*\*\*\*\*  
 GENERIC PART NUMBER: 93L422  
 FUNCTION: 256X4 RAM  
 TECHNOLOGY: BIPOLAR  
 REF. NO. RECORD: 79 4420  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: 93L422  
 PART NUMBER: 93L422  
 SPECIFICATION: 911916  
 DATA SOURCE: HUGHES  
 \*\*\*\*\*

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 UNK. CO60 5 VCC=5.5V  
 \*\*\*\*\*

CUM. DOSE (RADS): 0 10K 100K 1M 10M  
 PARAMETERS MEAN SD MEAN SD MEAN SD MEAN SD MEAN SD  
 VIL V .1500 .1500 .1000 .1510 .1100  
 ICC MA 66.50 66.00 65.00 62.50 59.00  
 \*\*\*\*\*

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
93L422	256X4 STATIC RAM	TTL	1060	5620

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FATCHILD	93L422		TRW

LDC	RAD. TYPE	PART QTY.	BIAS
80368	CO-60 + N*	10	VCC=+5V.

CUM. DOSE (RADS)	PARAMETERS	O		*N+30K	
		MEAN	SD	MEAN	SD
	V0H10	3.147	.0507	3.122	.0779
	V0H12	3.164	.0471	3.170	.0400
	V0H14	3.164	.0431	3.138	.0828
	V0H16	3.166	.0417	3.175	.0345
	ILH21-10	.8250	.4548	99220	31588
	ILH21-12	.7400	.4701	1101	2477

REMARKS: \*NEUTRON RAD. = 6.17E11 N/SQCM. \*\*CONTINUED ON RECORD 5621.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
931422	256X4 STATIC RAM	TTL	1060	5621

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	93L422		

LDC	RAD.	TYPE	PART	QTY.	BIAS

CUM. DOSE(RADS):		O		N+30K		
PARAMETERS	MEAN	SD	MEAN	SD	MEAN	SD
**						
ILHZ1-14 UA	.0723	.2270	104.6	37.66		
ILHZ1-16 NA	68.64	215.5	1449	2825		

REMARKS: \*\*CONTINUATION FROM RECORD 5620.

GENERIC PART NUMBER: 93L 22

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
93L422	256X4 STATIC RAM	TTL	1061	5630

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	93L422		TRW

LDK	RAD. TYPE	PART QTY.	BIAS
7928	CO-60 + N*	10	VCC=+5V.

CUM. DOSE (RADS) :	PARAMETERS	0		*N+30K	
		MEAN	SD	MEAN	SD
	V0H10	3.102	.0178	2.875	.1710
	V0H12	3.124	.0179	3.051	.0444
	V0H14	3.120	.0200	2.895	.1725
	V0H16	3.120	.0198	3.036	.0676
	ILH21-10	1.150	.3189	379.0	685.7
	ILH21-12	.7050	.2872	1.180	.3946

REMARKS: \*NEUTRON RAD. = 6.09E11 N/SQCM. \*\*CONTINUED ON RECORD 5631.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	REF. NO.	RECORD
93L422	256X4 STATIC RAM	TTL	1061	5631

MANUFACTURER	PART NUMBER	SPECIFICATION	DATA SOURCE
FAIRCHILD	93L422		

LDC	RAD.	TYPE	PART	QTY.	BIAS
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15
16	16	16	16	16	16
17	17	17	17	17	17
18	18	18	18	18	18
19	19	19	19	19	19
20	20	20	20	20	20
21	21	21	21	21	21
22	22	22	22	22	22
23	23	23	23	23	23
24	24	24	24	24	24
25	25	25	25	25	25
26	26	26	26	26	26
27	27	27	27	27	27
28	28	28	28	28	28
29	29	29	29	29	29
30	30	30	30	30	30
31	31	31	31	31	31
32	32	32	32	32	32
33	33	33	33	33	33
34	34	34	34	34	34
35	35	35	35	35	35
36	36	36	36	36	36
37	37	37	37	37	37
38	38	38	38	38	38
39	39	39	39	39	39
40	40	40	40	40	40
41	41	41	41	41	41
42	42	42	42	42	42
43	43	43	43	43	43
44	44	44	44	44	44
45	45	45	45	45	45
46	46	46	46	46	46
47	47	47	47	47	47
48	48	48	48	48	48
49	49	49	49	49	49
50	50	50	50	50	50
51	51	51	51	51	51
52	52	52	52	52	52
53	53	53	53	53	53
54	54	54	54	54	54
55	55	55	55	55	55
56	56	56	56	56	56
57	57	57	57	57	57
58	58	58	58	58	58
59	59	59	59	59	59
60	60	60	60	60	60
61	61	61	61	61	61
62	62	62	62	62	62
63	63	63	63	63	63
64	64	64	64	64	64
65	65	65	65	65	65
66	66	66	66	66	66
67	67	67	67	67	67
68	68	68	68	68	68
69	69	69	69	69	69
70	70	70	70	70	70
71	71	71	71	71	71
72	72	72	72	72	72
73	73	73	73	73	73
74	74	74	74	74	74
75					

CUM. DOSE (RADS)	O		N+30K		N+30K		N+30K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS								
**								
ILHZ1-14 NA	.9000	.4230	66.71	46.22				
ILHZ1-16 NA	.8950	.4622	1.120	.4832				

REMARKS: \*\*CONTINUED FROM RECORD 5630.

**PAGE A-322**

GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
93L422      256X4 STATIC RAM      TTL      1070      5720

MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
FAIRCHILD      93L422      TRW

LDC      RAD. TYPE      PART QTY.      BIAS  
-----  
7904      CO-60      5      VCC=+5V.

CUM. DOSE(RADS):											
0											
40K											
60K											
80K											
120K											
PARAMETERS											
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
VOL1		293.3	7.32	299.4	7.938	301.4	8.308	303.8	7.855	306.9	7.778
VOL2		303.9	8.35	306.2	8.467	308.4	8.674	310.2	8.473	314.4	8.782
VOL3		318.0	9.37	323.7	9.579	325.6	9.735	327.8	9.670	332.0	9.716
VOL4		323.0	7.11	324.5	8.317	327.0	7.327	328.4	7.313	331.4	7.217
VOL1		2.742	.0199	2.882	.0610	2.900	.1324	2.942	.1286	3.088	.2624
VOL2		2.765	.0242	2.760	.0372	2.770	.0410	2.777	.0419	2.801	.0605
**											

REMARKS:      \*\*CONTINUED ON RECORD 5721.

GENERIC PART NUMBER      FUNCTION      TECHNOLOGY      REF. NO. RECORD  
-----  
93L422      256X4 STATIC RAM      TTL      1070      5721

MANUFACTURER      PART NUMBER      SPECIFICATION      DATA SOURCE  
-----  
FAIRCHILD      93L422

LDC      RAD. TYPE      PART QTY.      BIAS  
-----

CUM. DOSE(RADS):		0		40K		60K		80K		120K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
V	VOH3	2.765	.0235	2.921	.1744	2.931	.1640	2.964	.1685	3.091	.2560
V	VOH4	2.769	.0204	2.786	.0339	2.796	.0372	2.801	.0368	2.815	.0434
MA	-IOS1	44.65	1.809	44.48	1.900	44.42	1.866	44.31	1.891	44.12	1.900
MA	-IOS2	44.87	1.611	44.63	1.725	44.59	1.668	44.48	1.685	44.33	1.714
MA	-IOS3	43.48	1.364	43.35	1.484	43.25	1.448	43.12	1.438	42.97	1.460
MA	-IOS4	45.79	1.018	45.66	1.122	45.56	1.075	45.46	1.075	45.30	1.100

REMARKS: CONTINUATION OF RECORD 5720.      \*\*CONTINUED ON RECORD 5722.



\*\*\*\*\*  
 GENERIC PART NUMBER: 93L422  
 FUNCTION: 256X4 STATIC RAM  
 TECHNOLOGY: TTL  
 REF. NO. RECORD: 1070 5722  
 MANUFACTURER: FAIRCHILD  
 PART NUMBER: 93L422  
 SPECIFICATION: DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE(RADS): 0  
 PARAMETERS: MEAN SD MEAN SD MEAN SD MEAN SD  
 ILHZ01 UA -.001 .0004 30.58 1.928 26.38 2.431 23.05 1.156 -2040 4584.  
 ILHZ02 UA .0004 .0004 -.002 .0014 -.002 .0027 -152. 273.3 -5912 4745.  
 ILHZ03 UA .0007 .0005 31.65 5.038 29.78 7.311 28.79 7.007 -1173 1792.  
 ILHZ04 UA .0007 .0006 -.002 .0011 -.002 .0011 -.007 .0057 -1563 1618.  
 \*\*

REMARKS: CONTINUATION OF RECORD 5721.

\*\*CONTINUED ON RECORD 5723.

\*\*\*\*\*  
 GENERIC PART NUMBER: 93L422  
 FUNCTION: 256X4 STATIC RAM  
 TECHNOLOGY: TTL  
 REF. NO. RECORD: 1070 5723  
 MANUFACTURER: FAIRCHILD  
 PART NUMBER: 93L422  
 SPECIFICATION: DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE(RADS): 0  
 PARAMETERS: MEAN SD MEAN SD MEAN SD MEAN SD  
 ILHZ11 UA .0004 .0003 125.6 30.83 120.9 39.69 134.6 41.57 160.9 39.37  
 ILHZ12 UA .0014 .0004 .0022 .0022 .0014 .0016 .0030 .0014 .0087 .0083  
 ILHZ13 UA .0016 .0003 122.4 24.94 118.0 35.03 132.0 38.17 160.5 37.99  
 ILHZ14 UA .0014 .0003 .0023 .0015 .0017 .0014 .0028 .0016 .0042 .0011  
 ICC MA 69.93 3.402 69.40 3.756 68.99 3.930 68.83 4.016 69.06 4.277  
 \*\*

REMARKS: CONTINUATION OF RECORD 5722.

\*\*CONTINUED ON RECORD 5724.

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GENERIC PART NUMBER: 93L422  
 FUNCTION: 256X4 STATIC RAM  
 TECHNOLOGY: TTL  
 REF. NO. RECORD: 1070 5724

MANUFACTURER: FAIRCHILD  
 PART NUMBER: 93L422  
 SPECIFICATION: DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS): 0

PARAMETERS	40K		60K		80K		120K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IIM(4)*	1.36	0.356	1.52	0.947	2.25	0.901	2.65	0.925
IIM(3)	2.33	0.540	2.41	1.154	2.55	1.149	2.25	1.429
IIM(2)	2.29	0.524	2.49	1.206	2.17	1.118	2.16	1.112
IIM(1)	2.22	0.217	2.88	0.516	1.77	0.593	2.17	0.414
IIM(5)	1.87	0.532	2.26	1.170	1.72	1.005	1.79	1.248
IIM(6)	2.00	0.357	2.45	0.596	1.60	0.582	1.80	0.572

REMARKS: CONT. FROM REC. 5723. \*()=PIN NUMBER. \*\*CONTINUED ON RECORD 5725.

GENERIC PART NUMBER: 93L422  
 FUNCTION: 256X4 STATIC RAM  
 TECHNOLOGY: TTL  
 REF. NO. RECORD: 1070 5725

MANUFACTURER: FAIRCHILD  
 PART NUMBER: 93L422  
 SPECIFICATION: DATA SOURCE

LDC RAD. TYPE PART QTY. BIAS

CUM. DOSE (RADS): 0

PARAMETERS	40K		60K		80K		120K	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IIM(7)*	1.84	0.135	1.88	0.436	1.91	0.469	1.61	0.717
IIM(9)	1.79	0.492	2.35	0.783	1.48	0.694	1.85	0.895
IIM(11)	2.00	0.5172	2.35	0.7408	1.74	0.687	1.76	0.953
IIM(13)	1.81	0.2535	1.91	0.4533	1.83	0.5209	2.02	0.3966
IIM(21)	1.99	0.4722	2.13	0.7397	2.04	0.7537	1.70	1.037

REMARKS: CONT. FROM REC. 5724. \*()=PIN NUMBER. \*\*CONTINUED ON RECORD 5726.

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GENERIC PART NUMBER: 93L422

\*\*\*\*\*  
 REF. NO. RECORD  
 1070 5726  
 TECHNOLOGY  
 TTL  
 SPECIFICATION  
 DATA SOURCE

\*\*\*\*\*  
 FUNCTION  
 256X4 STATIC RAM  
 PART NUMBER  
 93L422  
 MANUFACTURER  
 FAIRCHILD

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS

		40K		60K		80K		120K	
CUM. DOSE (RADS):		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS		111.6	7.005	153.7	32.35	135.5	15.27	139.6	17.23
-IIL*		859.5	11.15	858.9	12.17	869.1	12.65	874.3	12.73
-VIC*									

\*\*\*\*\*  
 REMARKS: CONT. FROM REC. 5724. \*AVG. OVER 16 PINS.  
 \*\*\*\*\*

\*\*\*\*\*  
 REF. NO. RECORD  
 501-6 4380  
 TECHNOLOGY  
 BIPOLAR  
 SPECIFICATION  
 DATA SOURCE  
 MARTIN

\*\*\*\*\*  
 GENERIC PART NUMBER  
 256 X 4 RAM  
 PART NUMBER  
 93422  
 MANUFACTURER  
 FAIRCHILD

\*\*\*\*\*  
 LDC RAD. TYPE PART QTY. BIAS  
 UNK.

		50K		100K		500K		1M	
CUM. DOSE (RADS):		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
PARAMETERS		20.67	1.528	21.67	5.774	19.67	5.774	19.67	5.774
TACS NS		17.33	5.774	17.33	2.082	16.33	2.517	16.67	3.055
TZRCS NS		27.00	1.000	26.67	1.528	26.00	1.732	27.33	2.309
TAHL NS		27.00	1.000	25.67	1.528	27.67	1.155	23.33	2.517
TAALH NS									

\*\*\*\*\*  
 REMARKS:  
 \*\*\*\*\*

GENERIC PART NUMBER: 93422  
FUNCTION: 256 X 4 RAM  
TECHNOLOGY: BIPOLAR  
REF. NO. RECORD: 501-6 4390

MANUFACTURER: FAIRCHILD  
PART NUMBER: 93422  
SPECIFICATION: DATA SOURCE: MARTIN

LDC RAD. TYPE PART QTY. BIAS  
7934 CO-60 3 UNK.

CUM. DOSE (RADS): 0

PARAMETERS	50K		100K		500K		1MEG	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
TACS NS	21.00	1.000	20.67	.5774	21.00	0.0000	19.67	2.082
TZRC NS	17.67	1.155	16.33	2.082	17.33	1.528	15.00	3.000
TAHL NS	25.67	1.528	23.00	1.000	24.33	1.528	23.33	.5774
TAALH NS	24.67	1.528	24.00	2.000	24.00	1.000	23.00	4.583

REMARKS:

\*\*\*\*\*

GENERIC PART NUMBER: 93422  
FUNCTION: 256X4-BIT RAM  
TECHNOLOGY: TTL  
REF. NO. RECORD: 1105 5950

MANUFACTURER: FAIRCHILD  
PART NUMBER: 93422DMQB  
SPECIFICATION: DATA SOURCE: MARTIN

LDC RAD. TYPE PART QTY. BIAS  
7934 CO-60\*\* 6 VCC=+5V.

CUM. DOSE (RADS): 0

PARAMETERS	50K		100K		500K		1MEG	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
FUNCTIONALITY	6PASS		6PASS		6PASS		6PASS	
TACS *** NS	20.8	1.067	21.2	.6872	20.3	.7453	18.7	1.700
TZRC NS	17.5	.7638	16.8	1.772	15.2	3.131	15.8	2.609
TAA(UP) * NS	26.3	1.247	24.8	2.115	25.2	1.572	25.3	2.427
TAA(DOWN)* NS	25.8	1.572	24.8	1.675	25.8	2.034	16.5	8.180

REMARKS: \*\*AND LINAC. \*\*\*,\*SPECS: \*TYP=40NS, MAX=60NS; \*\*TYP=20NS, MAX=45NS.

\*\*\*\*\*

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\*\*\*\*\*  
 GENERIC PART NUMBER: 93425  
 FUNCTION: RAM  
 TECHNOLOGY: TTL  
 REF. NO. RECORD: 701-1 4430  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: FAIRCHILD  
 PART NUMBER: 93425DM  
 SPECIFICATION: AFWL-TR-79-118  
 DATA SOURCE: AFWL-TR-79-118  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 UNK CO-60 10 VCC=+5V, ALL INPUTS AT GND  
 \*\*\*\*\*

CUM. DOSE (RADS):		0		100K		300K		500K		1MEG	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
ICC	MA	101.3		102.6		103.2		101.1		102.9	
IOL	MA	27.20		25.80		23.40		23.30		20.10	
IOH	MA	23.10		17.30		16.40		15.50		17.10	
TAC	NS	20.70		22.30		24.90		25.70		23.00	

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 9900  
 FUNCTION: 16-BIT MICROPROCESS  
 TECHNOLOGY: IIL  
 REF. NO. RECORD: 1-141 4370  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: TI  
 PART NUMBER: SBP9900  
 SPECIFICATION: JPL  
 DATA SOURCE: JPL  
 \*\*\*\*\*

LDC RAD. TYPE PART QTY. BIAS  
 NONE 2.5 MEV EL 3 VCC=5V.  
 \*\*\*\*\*

CUM. DOSE (RADS):		0		10K		30K		100K		300K	
PARAMETERS		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD

MAXIMUM OPERATING FREQUENCY  
 \* KHZ 900 850 700  
 \*\* KHZ 2550 2550 2350  
 NOTE: X-BAR  
 =WORST-CASE  
 REMARKS: \*INJECTION CURRENT = 90MA. \*\*INJECTION CURRENT = 520MA.  
 FAIL  
 FAIL  
 \*\*\*\*\*

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GENERIC PART NUMBER:

**PAGE A-329**

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MICROCIRCUIT RADIATION EFFECTS DATABANK  
SECTION B: SINGLE EVENT UPSET CROSS SECTIONS  
(CYCLOTRON TESTS)

SORT: GENERIC PART TYPE: RECORD ID NUMBER

\*\*\*\*\*  
GENERIC PART NUMBER 146  
\*\*\*\*\*  
FUNCTION 4KX1 RAM  
\*\*\*\*\*  
RECORD 100134  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER  
\*\*\*\*\*  
PART NUMBER  
\*\*\*\*\*  
TCS146  
\*\*\*\*\*  
SPECIFICATION  
\*\*\*\*\*

LDC: NO. OF PARTS: 3 DATA SOURCE: RCA/AEROSPACE REF. NO.: 11

\*\*\*\*\*  
ION ANGLE ENERGY BIAS RUNS FLUENCE  
\*\*\*\*\*  
KR 0 168MEV 5V 3  
\*\*\*\*\*

\*\*\*\*\*  
ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
\*\*\*\*\*  
NE NL  
\*\*\*\*\*

REMARKS: CHANNEL OXIDE = 1000 ANGSTROMS

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\*\*\*\*\*  
GENERIC PART NUMBER 146  
\*\*\*\*\*  
FUNCTION 4KX1 RAM  
\*\*\*\*\*  
RECORD 100135  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER  
\*\*\*\*\*  
PART NUMBER  
\*\*\*\*\*  
TCS146  
\*\*\*\*\*  
SPECIFICATION  
\*\*\*\*\*

LDC: NO. OF PARTS: 3 DATA SOURCE: RCA/AEROSPACE REF. NO.: 11

\*\*\*\*\*  
ION ANGLE ENERGY BIAS RUNS FLUENCE  
\*\*\*\*\*  
KR 60 168MEV 5V 3  
\*\*\*\*\*

\*\*\*\*\*  
ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
\*\*\*\*\*  
NE NL  
\*\*\*\*\*

REMARKS: CHANNEL OXIDE = 1000 ANGSTROMS



GENERIC PART NUMBER 146  
FUNCTION 4KX1 RAM  
RECORD 100136

MANUFACTURER RCA  
PART NUMBER TCS146  
SPECIFICATION

LDC: NO. OF PARTS: 3 DATA SOURCE: RCA/AEROSPACE REF. NO.: 11

ION ANGLE ENERGY BIAS RUNS FLUENCE  
KR 70 168MEV 5V 3

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS: CHANNEL OXIDE = 1000 ANGSTROMS

\*\*\*\*\*

GENERIC PART NUMBER 146  
FUNCTION 4KX1 RAM  
RECORD 100137

MANUFACTURER RCA  
PART NUMBER TCS146  
SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: RCA/AEROSPACE REF. NO.: 11

ION ANGLE ENERGY BIAS RUNS FLUENCE  
KR 45 168MEV 5V 1

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
2.5E-6 2.5E-6 NL

REMARKS: CHANNEL OXIDE=1000ANGSTROMS

GENERIC PART NUMBER: 146  
 FUNCTION: 4KX1 RAM  
 TECHNOLOGY: CMOS/SOS  
 RECORD: 100138

MANUFACTURER: RCA  
 PART NUMBER: TCS146  
 SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: RCA/AEROSPACE REF. NO.: 11

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
AR	70	80MEV	5V	1	

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
		NE	NL

REMARKS: CHANNEL OXIDE=1000ANGSTROMS

GENERIC PART NUMBER: 146  
 FUNCTION: 4KX1RAM  
 TECHNOLOGY: CMOS/SOS  
 RECORD: 100139

MANUFACTURER: RCA  
 PART NUMBER: TCS146  
 SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: RCA/AEROSPACE REF. NO.: 11

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	30	168MEV	5V	1	

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
4.3E-7	4.3E-7		NL

REMARKS: CHANNEL OXIDE=1000ANGSTROMS

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\*\*\*\*\*  
GENERIC PART NUMBER: 146  
\*\*\*\*\*

PAGE B- 4  
\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
146	4KX1 RAM	CMOS/SOS	100140
MANUFACTURER	PART NUMBER	SPECIFICATION	
RCA	TCS146		

LDC: NO. OF PARTS: 1 DATA SOURCE: RCA/AEROSPACE REF.NO.: 11

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	45	168MEV	5V	1	

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
4.7E-6	4.7E-6
	NL

REMARKS: CHANNEL OXIDE=1000ANGSTROMS

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
146	4KX1 RAM	CMOS/SOS	100141
MANUFACTURER	PART NUMBER	SPECIFICATION	
RCA	TCS146		

LDC: NO. OF PARTS: 1 DATA SOURCE: RCA/AEROSPACE REF.NO.: 11

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	0	168MEV	5V	1	

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
2.9E-6	2.9E-6
	NL

REMARKS: CHANNEL OXIDE=700 ANGSTROMS

\*\*\*\*\*  
GENERIC PART NUMBER: 146  
\*\*\*\*\*

PAGE B- 4  
\*\*\*\*\*

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OF POOR QUALITY



\*\*\*\*\*  
GENERIC PART NUMBER: 146  
\*\*\*\*\*

PAGE B- 6  
\*\*\*\*\*

GENERIC PART NUMBER 146  
FUNCTION 4KX1 RAM  
RECORD 100144

TECHNOLOGY

CMOS/SOS

MANUFACTURER RCA  
PART NUMBER TCS146  
SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: RCA/AEROSPACE REF. NO.: 11

ION ANGLE 60 ENERGY 168MEV BIAS 10V RUNS 1 FLUENCE  
KR

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS: CHANNEL OXIDE=700ANGSTROMS

GENERIC PART NUMBER 146  
FUNCTION 4KX1 RAM  
RECORD 1C0145

TECHNOLOGY

1C0145

MANUFACTURER RCA  
PART NUMBER TCS146  
SPECIFICATION

LDC: NO. OF PARTS: 2 DATA SOURCE: RCA/AEROSPACE REF. NO.: 11

ION ANGLE 60 ENERGY 168MEV BIAS 5V RUNS 2 FLUENCE  
KR

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
\*4.4E-4 \*4.4E-4 NL

REMARKS: CHANNEL OXIDE=850ANGSTROMS \* ERROR CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

\*\*\*\*\*  
GENERIC PART NUMBER: 146  
\*\*\*\*\*

PAGE B- 6  
\*\*\*\*\*

ORIGINAL PAGE IS  
OF POOR QUALITY

GENERIC PART NUMBER  
 -----  
 146  
 -----  
 FUNCTION  
 -----  
 4KX1 RAM  
 -----  
 TECHNOLOGY  
 -----  
 CMOS/SOS  
 -----  
 RECORD  
 -----  
 100146  
 -----

MANUFACTURER  
 -----  
 RCA  
 -----  
 PART NUMBER  
 -----  
 TCS146  
 -----  
 SPECIFICATION  
 -----

LDC: NO. OF PARTS: 2 DATA SOURCE: RCA/AEROSPACE REF. NO.: 11

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	70	168MEV	5V	2	---

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
---	---
*5.3E-4	*4.5E-4
---	NL

REMARKS: CHANNEL OXIDE=850ANGSTROMS \* ERROR CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT  
 \*\*\*\*\*

GENERIC PART NUMBER  
 -----  
 146  
 -----  
 FUNCTION  
 -----  
 4KX1 RAM  
 -----  
 TECHNOLOGY  
 -----  
 CMOS/SOS  
 -----  
 RECORD  
 -----  
 100147  
 -----

MANUFACTURER  
 -----  
 RCA  
 -----  
 PART NUMBER  
 -----  
 TCS146  
 -----  
 SPECIFICATION  
 -----

LDC: NO. OF PARTS: 1 DATA SOURCE: RCA/AEROSPACE REF. NO.: 11

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	45	168MEV	5V	1	---

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
---	---
*2.4E-4	*2.4E-4
---	NL

REMARKS: CHANNEL OXIDE=850ANGSTROMS \* ERROR CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT  
 \*\*\*\*\*

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MANUFACTURER	PART NUMBER	SPECIFICATION
RCA	TCS146	

LDC: NO. OF PARTS: 2 DATA SOURCE: RCA/AEROSPACE REF.NO.: 11

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	0	168MEV	5V	2	

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
*1.9E-4	*1.7E-4		NI

REMARKS: CHANNEL OXIDE=850ANGSTROMS \* ERROR CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
146	4KX1 RAM	CMOS/SOS	100149

MANUFACTURER	PART NUMBER	SPECIFICATION
RCA	TCS146	

LDC: NO. OF PARTS: 1 DATA SOURCE: RCA/AEROSPACE REF.NO.: 11

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	30	168MEV	5V	1	

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
*1.8E-4	*1.8E-4		NL

REMARKS: CHANNEL OXIDE=850ANGSTROMS \* ERROR CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

\*\*\*\*\*  
GENERIC PART NUMBER: 146

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GENERIC PART NUMBER 146  
FUNCTION 4KX1 RAM  
RECORD 100150  
TECHNOLOGY CMOS/SOS  
MANUFACTURER RCA  
PART NUMBER TCS146  
SPECIFICATION

LDC: NO. OF PARTS: 2 DATA SOURCE: RCA/AEROSPACE REF. NO.: 11

ION ANGLE ENERGY BIAS RUNS FLUENCE  
KR 70 168MEV 10V 2  
ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
\*3.6E-4 \*3.2E-4 NL

REMARKS: CHANNEL OXIDE=850ANGSTROMS \* ERROR CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

GENERIC PART NUMBER 146  
FUNCTION 4KX1 RAM  
RECORD 100151  
TECHNOLOGY CMOS/SOS  
MANUFACTURER RCA  
PART NUMBER TCS146  
SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: RCA/AEROSPACE REF. NO.: 11

ION ANGLE ENERGY BIAS RUNS FLUENCE  
KR 60 168MEV 10V 1  
ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
\*1.6E-4 \*1.6E-4 NL

REMARKS: CHANNEL OXIDE=850ANGSTROMS \* ERROR CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

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GENERIC PART NUMBER: 150  
 FUNCTION: 1K RAM  
 TECHNOLOGY: CMOS/SOS  
 RECORD: 100058

MANUFACTURER: RCA  
 PART NUMBER: TCS150  
 SPECIFICATION: -----

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 P+ 0 56MEV 5V 1 2.5E9

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 NE NE NL

REMARKS:

\*\*\*\*\*

GENERIC PART NUMBER: 150  
 FUNCTION: 1K RAM  
 TECHNOLOGY: CMOS/SOS  
 RECORD: 100059

MANUFACTURER: RCA  
 PART NUMBER: TCS150 (RAD HARD)  
 SPECIFICATION: -----

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 P+ 0 56MEV 5V 1 2.5E9

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 NE NE NL

REMARKS:

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GENERIC PART NUMBER 1821  
FUNCTION 1KX1 RAM  
RECORD 100077

MANUFACTURER RCA  
PART NUMBER CDP1821  
SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: ROCKWELL/TIROSN REF.NO.: 6

ION ANGLE ENERGY BIAS RUNS FLUENCE  
KR 75 152MEV 10V 1 5.8E5

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS:

GENERIC PART NUMBER 1821  
FUNCTION 1KX1 RAM  
RECORD 100078

MANUFACTURER RCA  
PART NUMBER CDP1821  
SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: ROCKWELL/TIROSN REF.NO.: 6

ION ANGLE ENERGY BIAS RUNS FLUENCE  
KR 60 152MEV 5V 1 1.4E5

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS:

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\*\*\*\*\*  
GENERIC PART NUMBER: 1821  
\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
1821	1KX1 RAM	CMOS	100079
-----			
MANUFACTURER	PART NUMBER	SPECIFICATION	
RCA	CDP1821		

LDC: NO. OF PARTS: 6 DATA SOURCE: ROCKWELL/TIROSN REF.NO.: 6

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	75	152MEV	5V	7	2.3EG

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
---	---
2.E-9	4.E-10
	NL

REMARKS: 1 ERROR IN 1 PART IN 1 RUN

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
1821	1KX1 RAM	CMOS	100080
-----			
MANUFACTURER	PART NUMBER	SPECIFICATION	
RCA	CDP1821		

LDC: NO. OF PARTS: 2 DATA SOURCE: ROCKWELL/TIROSN REF.NO.: 6

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	75	152MEV	3.5V	2	2.9E5

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
---	---
	NE
	NL

REMARKS: BIAS LESS THAN MINIMUM SPEC OPERATING LEVEL

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
1821	1KX1 RAM	CMDS	100081
-----			
MANUFACTURER	PART NUMBER	SPECIFICATION	
RCA	CDP1821		

LDC: NO. OF PARTS: 5 DATA SOURCE: ROCKWELL/TIROSN REF.NO.: 6

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	75	152MEV	2V	5	1.6E6

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
1.E-8	3.E-9
	NL

REMARKS: BIAS LESS THAN MINIMUM SPEC OPERATING LEVEL

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
1821	1KX1 RAM	CMDS	100082
-----			
MANUFACTURER	PART NUMBER	SPECIFICATION	
RCA	CDP1821		

LDC: NO. OF PARTS: 3 DATA SOURCE: ROCKWELL/SAMSO REF.NO.: 7

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	0	150MEV	5V	3	3.8E6

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
	NE
	NL

REMARKS:

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\*\*\*\*\*  
GENERIC PART NUMBER: 1821  
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GENERIC PART NUMBER 1821  
FUNCTION 1KX1 RAM  
TECHNOLOGY CMOS  
RECORD 100083  
MANUFACTURER RCA  
PART NUMBER CDP1821  
SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: ROCKWELL/SAMSO REF. NO.: 7

ION ANGLE 60 ENERGY 150MEV BIAS 5V RUNS 1 FLUENCE 4.2E5  
KR

ERROR CROSS SECTION MAX MEAN  
LATCH CROSS SECTION MAX MEAN  
NE NL

REMARKS:

GENERIC PART NUMBER 1821  
FUNCTION 1KX1 RAM  
TECHNOLOGY CMOS  
RECORD 100084  
MANUFACTURER RCA  
PART NUMBER CDP1821  
SPECIFICATION

LDC: NO. OF PARTS: 3 DATA SOURCE: ROCKWELL/SAMSO REF. NO.: 7

ION ANGLE 70 ENERGY 150MEV BIAS 5V RUNS 3 FLUENCE 1.6E6  
KR

ERROR CROSS SECTION MAX MEAN  
LATCH CROSS SECTION MAX MEAN  
NE NL

REMARKS:

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\*\*\*\*\*  
GENERIC PART NUMBER: 1821  
\*\*\*\*\*

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1021  
\*\*\*\*\*  
GENERIC PART NUMBER  
1821

FUNCTION

1KX1 RAM

TECHNOLOGY

CMOS

RECORD

100085

MANUFACTURER

RCA

PART NUMBER

CDP1821

SPECIFICATION

LDC:

NO. OF PARTS: 4 DATA SOURCE: ROCKWELL/SAMSO REF.NO.: 7

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	75	150MEV	5V	14	1.3E7

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
7.E-9	7.E-10
	NL

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER  
1821

FUNCTION

1KX1 RAM

TECHNOLOGY

CMOS

RECORD

100086

MANUFACTURER

RCA

PART NUMBER

CDP1821

SPECIFICATION

LDC:

NO. OF PARTS: 3 DATA SOURCE: ROCKWELL/SAMSO REF.NO.: 7

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	80	150MEV	5V	4	1.1E7

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
5.E-9	3.E-9
	NL

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 1822

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\*\*\*\*\*  
 GENERIC PART NUMBER: 1822  
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 \*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
1822	256X4 RAM	CMOS	100087
-----			
MANUFACTURER	PART NUMBER	SPECIFICATION	
RCA	CDP1822		

LDC: NO. OF PARTS: 1 DATA SOURCE: ROCKWELL/SAMSO REF. NO.: 7

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	0	152MEV	5V	2	2.4E5

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
---	---
NE	NL

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
1822	256X4 RAM		100088
-----			
MANUFACTURER	PART NUMBER	SPECIFICATION	
RCA	CDP1822		

LDC: NO. OF PARTS: 2 DATA SOURCE: ROCKWELL/SAMSO REF. NO.: 7

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	70	152MEV	5V	2	3.9E6

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
---	---
NE	NL

REMARKS:

ORIGINAL PAGE IS  
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\*\*\*\*\*  
 GENERIC PART NUMBER: 1822  
 \*\*\*\*\*

GENERIC PART NUMBER  
 -----  
 1822  
  
 FUNCTION  
 -----  
 256X4 RAM  
  
 TECHNOLOGY  
 -----  
 CMOS  
  
 RECORD  
 -----  
 100089

MANUFACTURER  
 -----  
 RCA  
  
 PART NUMBER  
 -----  
 CDP1822  
  
 SPECIFICATION  
 -----

LDC: NO. OF PARTS: 2 DATA SOURCE: ROCKWELL/SAMSO REF.NO.: 7

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	75	152MEV	5V	4	3.4E6

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
-----	-----	-----	-----
	NE		NL

REMARKS:

ORIGINAL PAGE IS  
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GENERIC PART NUMBER  
 -----  
 1822  
  
 FUNCTION  
 -----  
 256X4 RAM  
  
 TECHNOLOGY  
 -----  
 CMOS  
  
 RECORD  
 -----  
 100090

MANUFACTURER  
 -----  
 RCA  
  
 PART NUMBER  
 -----  
 CDP1822  
  
 SPECIFICATION  
 -----

LDC: NO. OF PARTS: 2 DATA SOURCE: ROCKWELL/SAMSO REF.NO.: 7

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	80	152MEV	5V	2	5.4E6

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
-----	-----	-----	-----
	NE		NL

REMARKS:



\*\*\*\*\*  
GENERIC PART NUMBER: 1824  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER 1824  
FUNCTION 32X8 RAM  
TECHNOLOGY CMOS  
RECORD 100158

MANUFACTURER  
PART NUMBER  
SPECIFICATION  
RCA CDP1824

LDC: NO. OF PARTS: 4 DATA SOURCE: JPL (2/82) REF. NO.: 12

ION ANGLE ENERGY BIAS RUNS FLUENCE  
P+ 0 595MEV 10V 7 2.5E9

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS:

GENERIC PART NUMBER 1824  
FUNCTION 32X8 RAM  
TECHNOLOGY CMOS  
RECORD 100163

MANUFACTURER  
PART NUMBER  
SPECIFICATION  
RCA CDP1824

LDC: NO. OF PARTS: 2 DATA SOURCE: JPL (2/82) REF. NO.: 12

ION ANGLE ENERGY BIAS RUNS FLUENCE  
P+ 0 160MEV 10V 3 1.OE10

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS:

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GENERIC PART NUMBER: 2147  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
2147	4KX1 RAM	NMOS	100112
-----			
MANUFACTURER	PART NUMBER	SPECIFICATION	
INTEL	M2147		

LDC: NO. OF PARTS: 2 DATA SOURCE: RI/SAMSO REF. NO.: 9

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
AR	0	*	5V	14	
-----					
ERROR CROSS SECTION		LATCH CROSS SECTION		NL	
MAX		MAX		MEAN	
-----		-----		-----	
2.1E-6					

REMARKS: ENERGY= 14MEV TO 115MEV: STD. DEV.= 7.1E-7

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
244	256X4 RAM	CMOS	100034
-----			
MANUFACTURER	PART NUMBER	SPECIFICATION	
RCA	TCC244		

LDC: NO OF PARTS: 1 DATA SOURCE: JPL (1/81) REF. NO.: 2

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	0	120MEV	5V	1	4.2E5
-----					
ERROR CROSS SECTION		LATCH CROSS SECTION		NL	
MAX		MAX		MEAN	
-----		-----		-----	
NE					

REMARKS:

GENERIC PART NUMBER  
-----  
244

FUNCTION  
-----  
256X4 RAM

TECHNOLOGY  
-----  
CMOS

RECORD  
-----  
100035

MANUFACTURER  
-----  
RCA

PART NUMBER  
-----  
TCC244

SPECIFICATION  
-----

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (1/81) REF. NO.: 2

ION ANGLE ENERGY BIAS RUNS FLUENCE  
-----  
KR 50 120MEV 5V 1 2.9E5

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
-----  
NE NL

REMARKS:

\*\*\*\*\*  
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GENERIC PART NUMBER  
-----  
244

FUNCTION  
-----  
256X4 RAM

TECHNOLOGY  
-----  
CMOS

RECORD  
-----  
100036

MANUFACTURER  
-----  
RCA

PART NUMBER  
-----  
TCC244

SPECIFICATION  
-----

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (1/81) REF. NO.: 2

ION ANGLE ENERGY BIAS RUNS FLUENCE  
-----  
KR 70 120MEV 5V 1 3.0E5

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
-----  
NE NL

REMARKS:

GENERIC PART NUMBER: 244  
 FUNCTION: 256X4 RAM  
 TECHNOLOGY: CMOS  
 RECORD: 100057

MANUFACTURER: RCA  
 PART NUMBER: TCC244  
 SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF.NO.: 4

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	130MEV	5V	2	5.6E9

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
NE			NL

REMARKS:

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GENERIC PART NUMBER: 244  
 FUNCTION: 256X4 RAM  
 TECHNOLOGY: CMOS  
 RECORD: 100060

MANUFACTURER: RCA  
 PART NUMBER: TCC244  
 SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF.NO.: 5

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	36MEV	5V	1	2.5E9

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
NE			NL

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 244  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
244	256X4 RAM	CMOS	100061
MANUFACTURER	PART NUMBER	SPECIFICATION	
RCA	TCC244		

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF.NO.: 5

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	56MEV	5V	1	2.5E9

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
NE	NL

REMARKS:

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
40160	COUNTER	CMOS	100132
MANUFACTURER	PART NUMBER	SPECIFICATION	
FAIRCHILD	40160		

LDC: NO. OF PARTS: 1 DATA SOURCE: MIT/JPL REF.NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	0	120MEV	5V	1	

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
NE	NL

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 40160  
\*\*\*\*\*

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GENERIC PART NUMBER: 40160  
 FUNCTION: COUNTER  
 TECHNOLOGY: CMOS  
 RECORD: 100133

MANUFACTURER: FAIRCHILD  
 PART NUMBER: 40160  
 SPECIFICATION:

LDC: NO. OF PARTS: 2 DATA SOURCE: MIT/JPL REF. NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	65	120MEV	5V	3	

ERROR CROSS SECTION		LATCH CROSS SECTION		
MAX	MEAN	MAX	MEAN	
				NL

REMARKS:

GENERIC PART NUMBER: 4018  
 FUNCTION: COUNTER  
 TECHNOLOGY: CMOS  
 RECORD: 100025

MANUFACTURER: RCA  
 PART NUMBER: CD4018  
 SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (1/81) REF. NO.: 2

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
AR	60	150MEV	10V	2	1.3E8

ERROR CROSS SECTION		LATCH CROSS SECTION		
MAX	MEAN	MAX	MEAN	
				NA
				NL

REMARKS:

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GENERIC PART NUMBER: 4018

GENERIC PART NUMBER  
4018

FUNCTION  
COUNTER

TECHNOLOGY  
CMOS

RECORD  
100026

MANUFACTURER  
RCA

PART NUMBER  
CD4018

SPECIFICATION

LDC: NO. OF PARTS: 3 DATA SOURCE: JPL (1/81) REF. NO.: 2

ION ANGLE 60 ENERGY 120MEV BIAS 10V RUNS 5 FLUENCE 1.7E8

ERROR CROSS SECTION  
MAX MEAN

LATCH CROSS SECTION  
MAX MEAN

NA NL

REMARKS:

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GENERIC PART NUMBER  
4044

FUNCTION  
4KX1 RAM

TECHNOLOGY  
NMOS

RECORD  
100113

MANUFACTURER  
TEXAS INSTRUMENTS

PART NUMBER  
TMS4044

SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: RI/SAMSO REF. NO.: 9

ION ANGLE 0 ENERGY \* BIAS 5V RUNS 6 FLUENCE

ERROR CROSS SECTION  
MAX MEAN

LATCH CROSS SECTION  
MAX MEAN

7.1E-6 NL

REMARKS: ENERGY= 46MEV TO 115MEV: STD. DEV. = 3.4E-6

GENERIC PART NUMBER: 4049

-----  
 GENERIC PART NUMBER  
 4049  
 -----  
 FUNCTION  
 HEX INVERTER  
 -----  
 TECHNOLOGY  
 CMOS  
 -----  
 RECORD  
 100020  
 -----

-----  
 MANUFACTURER  
 RCA  
 -----  
 PART NUMBER  
 CD4049  
 -----  
 SPECIFICATION  
 -----

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (1/81) REF. NO.: 2

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
AR	0	150MEV	5	2	5.7E5

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
-----	-----	-----	-----
NA	NA	NA	NL

REMARKS:

\*\*\*\*\*

-----  
 GENERIC PART NUMBER  
 4049  
 -----  
 FUNCTION  
 HEX INVERTER  
 -----  
 TECHNOLOGY  
 CMOS  
 -----  
 RECORD  
 100021  
 -----

-----  
 MANUFACTURER  
 RCA  
 -----  
 PART NUMBER  
 CD4049  
 -----  
 SPECIFICATION  
 -----

LDC: NO. OF PARTS: 2 DATA SOURCE: JPL (1/81) REF. NO.: 2

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
AR	50	150MEV	10V	3	5.1E7

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
-----	-----	-----	-----
NA	NA	NA	NL

REMARKS:

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\*\*\*\*\*  
GENERIC PART NUMBER: 4049  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER: 4049  
FUNCTION: HEX INVERTER  
TECHNOLOGY: CMOS  
RECORD: 100022

MANUFACTURER: RCA  
PART NUMBER: CD4049  
SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (1/81) REF. NO.: 2

ION ANGLE ENERGY BIAS RUNS FLUENCE  
AR 60 150MEV 10V 1 3.E7

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NA NL

REMARKS:

\*\*\*\*\*

GENERIC PART NUMBER: 4049  
FUNCTION: HEX INVERTER  
TECHNOLOGY: CMOS  
RECORD: 100023

MANUFACTURER: RCA  
PART NUMBER: CD4049  
SPECIFICATION:

LDC: NO. OF PARTS: 2 DATA SOURCE: JPL (1/81) REF. NO.: 2

ION ANGLE ENERGY BIAS RUNS FLUENCE  
KR 60 120MEV 10V 6 2.E8

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NA NL

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 4049  
\*\*\*\*\*  
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\*\*\*\*\*  
GENERIC PART NUMBER: 4049  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER  
4049

MANUFACTURER  
RCA

FUNCTION  
HEX INVERTER

TECHNOLOGY  
CMOS

PART NUMBER  
CD4049

SPECIFICATION

RECORD  
100024

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (1/81) REF. NO.: 2

ION ANGLE ENERGY BIAS RUNS FLUENCE  
---  
KR 60 120MEV 5V 1 2.8E7

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
---  
NA NL

REMARKS:

GENERIC PART NUMBER  
4081

MANUFACTURER  
RCA

FUNCTION  
QUAD-2INPUT AND GATE

TECHNOLOGY  
CMOS

PART NUMBER  
CD4081

SPECIFICATION

RECORD  
100027

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (1/81) REF. NO.: 2

ION ANGLE ENERGY BIAS RUNS FLUENCE  
---  
AR 60 150MEV 10V 1 5.6E7

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
---  
NA NL

REMARKS:

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OF POOR QUALITY

\*\*\*\*\*  
GENERIC PART NUMBER: 4081  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER: 4081  
FUNCTION: QUAD-2INPUT AND GATE  
RECORD: 100028

MANUFACTURER: RCA  
PART NUMBER: CD4081  
SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (1/81) REF. NO.: 2

ION ANGLE 60 ENERGY 120MEV BIAS 10V RUNS 2 FLUENCE 5.6E7  
KR

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NA NL

REMARKS:

\*\*\*\*\*

GENERIC PART NUMBER: 4104  
FUNCTION: 4KX1 RAM  
RECORD: 100114

MANUFACTURER: MOSTEK  
PART NUMBER: MK4104  
SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: RI/SAMSO REF. NO.: 9

ION ANGLE 0 ENERGY 105MEV BIAS 5V RUNS 5 FLUENCE  
AR

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
2.4E-7 NL

REMARKS: STD. DEV. = 4.1E-8

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OF POOR QUALITY

\*\*\*\*\*  
GENERIC PART NUMBER: 54LS73  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
54LS73	DUAL JK FLIP-FLOP	TTL	100121
MANUFACTURER	PART NUMBER	SPECIFICATION	
SIGNETICS	53LS73		

LDC: NO. OF PARTS: 1 DATA SOURCE: MIT/JPL REF.NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	0	120MEV	5V	6	

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
---	---
	MEAN
	---
	NL

\* 2.6E-5

REMARKS: \* ERROR CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
54LS95	4BIT SHIFT REGISTER	TTL	100122
MANUFACTURER	PART NUMBER	SPECIFICATION	
SIGNETICS	54LS95		

LDC: NO. OF PARTS: 2 DATA SOURCE: MIT/JPL REF.NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	0	120MEV	5V	2	

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
---	---
	MEAN
	---
	NL

\* 6.E-6

REMARKS: \* ERROR CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

\*\*\*\*\*  
GENERIC PART NUMBER: 54L78  
\*\*\*\*\*

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\*\*\*\*\*

MANUFACTURER	PART NUMBER	SPECIFICATION
NATIONAL	DM54L78	

LDC: NO. OF PARTS: 2 DATA SOURCE: MIT/JPL REF.NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	0	120MEV	5V	4	

TEST	ERROR CROSS SECTION		LATCH CROSS SECTION		NL
	MAX	MEAN	MAX	MEAN	
1	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000	0.000
29	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.000
31	0.000	0.000	0.000	0.000	0.000
32	0.000	0.000	0.000	0.000	0.000
33	0.000	0.000	0.000	0.000	0.000
34	0.000	0.000	0.000	0.000	0.000
35	0.000	0.000	0.000	0.000	0.000
36	0.000	0.000	0.000	0.000	0.000
37	0.000	0.000	0.000	0.000	0.000
38	0.000	0.000	0.000	0.000	0.000
39	0.000	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000	0.000
41	0.000	0.000	0.000	0.000	0.000
42	0.000	0.000	0.000	0.000	0.000
43	0.000	0.000	0.000	0.000	0.000
44	0.000	0.000	0.000	0.000	0.000
45	0.000	0.000	0.000	0.000	0.000
46	0.000	0.000	0.000	0.000	0.000
47	0.000	0.000	0.000	0.000	0.000
48	0.000	0.000	0.000	0.000	0.000
49	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000
51	0.000	0.000	0.000	0.000	0.000
52	0.000	0.000	0.000	0.000	0.000
53	0.000	0.000	0.000	0.000	0.000
54	0.000	0.000	0.000	0.000	0.000
55	0.000	0.000	0.000	0.000	0.000
56	0.000	0.000	0.000	0.000	0.000
57	0.000	0.000	0.000	0.000	0.000
58					

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
54L78	DUAL JK FLIP-FLOP	TTL	100117
MANUFACTURER	PART NUMBER	SPECIFICATION	
NATIONAL	DM54L78		

LDC: NO. OF PARTS: 3 DATA SOURCE: MIT/JPL REF.NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	65	120MEV	5V	6	

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
-----	-----	-----	-----
	2.4E-5		NI

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
5473	DUAL JK FLIP-FLOP	TTL	100127
MANUFACTURER	PART NUMBER	SPECIFICATION	
SIGNETICS	5473		

LDC: NO. OF PARTS: 1 DATA SOURCE: MIT/JPL REF. NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	0	120MEV	5V	2	

ERROR CROSS SECTION	LATCH CROSS SECTION	
MAX	MAX	
---	---	---
NE		NL

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
5473	DUAL JK FLIP-FLOP	TTL	100128
MANUFACTURER	PART NUMBER	SPECIFICATION	
SIGNETICS	5473		

LDC: NO. OF PARTS: 1 DATA SOURCE: MIT/JPL REF. NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	65	120MEV	5V	6	

ERROR CROSS SECTION	LATCH CROSS SECTION	
MAX	MAX	
---	---	---
NE		NL

REMARKS:

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GENERIC PART NUMBER 5495  
 FUNCTION 48BIT SHIFT REGISTER  
 TECHNOLOGY TTL  
 RECORD 100126

MANUFACTURER SIGNETICS  
 PART NUMBER 5495  
 SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: MIT/JPL REF. NO.: 10

ION ANGLE 0 ENERGY 120MEV BIAS 5V RUNS 2 FLUENCE  
 KR

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 NE NL

REMARKS:

\*\*\*\*\*

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GENERIC PART NUMBER 6504  
 FUNCTION 4KX1 RAM  
 TECHNOLOGY CMOS  
 RECORD 100062

MANUFACTURER HARRIS  
 PART NUMBER HAG504  
 SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION ANGLE 0 ENERGY 56MEV BIAS 5V RUNS 1 FLUENCE 2.5E9  
 P+

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 NE NL

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 6508  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER: 6508  
FUNCTION: 1KX1 RAM  
TECHNOLOGY: CMOS  
RECORD: 100001

MANUFACTURER: HARRIS  
PART NUMBER: HM6508  
SPECIFICATION:

LDC: NO. OF PARTS: 5 DATA SOURCE: RI/TIROS(N(6/80) REF.NO.: 1

ION ANGLE ENERGY BIAS RUNS FLUENCE  
KR 0 152MEV 5V 19 5.4E4

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
\* 4.0E-3 9.0E-4

REMARKS: MANY ERRORS: LATCHUP IN ALL PARTS IN ALL RUNS  
\*\*\*\*\*

GENERIC PART NUMBER: 6508  
FUNCTION: 1KX1 RAM  
TECHNOLOGY: CMOS  
RECORD: 100002

MANUFACTURER: HARRIS  
PART NUMBER: HM6508  
SPECIFICATION:

LDC: NO. OF PARTS: 4 DATA SOURCE: RI/TIROS(N(6/80) REF.NO.: 1

ION ANGLE ENERGY BIAS RUNS FLUENCE  
KR 0 40MEV 5V 16 1.3E6

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
1.2E-6 2.0E-7 NL

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 6508  
\*\*\*\*\*

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\*\*\*\*\*

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GENERIC PART NUMBER: 6508

RECORD

100003

TECHNOLOGY  
CMOS  
SPECIFICATION

FUNCTION  
1KX1 RAM

GENERIC PART NUMBER  
6508

MANUFACTURER  
HARRIS

PART NUMBER  
HM6508

REF. NO.: 1

NO. OF PARTS: 3 DATA SOURCE: RI/TIROS(6/80)

LDC:

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	0	20MEV	5V	5	2.5EG

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
---	---	---	---
---	---	---	NL

REMARKS:

RECORD

100004

TECHNOLOGY  
CMOS  
SPECIFICATION

FUNCTION  
1KX1 RAM

GENERIC PART NUMBER  
6508

MANUFACTURER  
HARRIS

PART NUMBER  
HM6508

REF. NO.: 1

NO. OF PARTS: 2 DATA SOURCE: RI/TIROS(6/80)

LDC:

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	60	20MEV	5V	2	5.6E5

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
---	---	---	---
---	---	---	NL

REMARKS:

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OF POOR QUALITY

GENERIC PART NUMBER: 6508  
 FUNCTION: 1KX1 RAM  
 TECHNOLOGY: CMOS  
 RECORD: 100005

MANUFACTURER: HARRIS  
 PART NUMBER: HM6508  
 SPECIFICATION: -----

LDC: NO. OF PARTS: 4 DATA SOURCE: RI/TIROS(6/80) REF.NO.: 1

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	60	32MEV	5V	6	3.3E6

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
1.5E-7	6.0E-8		NL

REMARKS:

GENERIC PART NUMBER: 6508  
 FUNCTION: 1KX1 RAM  
 TECHNOLOGY: CMOS  
 RECORD: 100006

MANUFACTURER: HARRIS  
 PART NUMBER: HM6508  
 SPECIFICATION: -----

LDC: NO. OF PARTS: 4 DATA SOURCE: RI/TIROS(6/80) REF.NO.: 1

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
AR	0	210MEV	5V	11	2.9E5

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
9.0E-6	5.0E-6	1.6E-4	7.E-5

REMARKS: LATCHUP IN ALL PARTS IN 8 RUNS

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\*\*\*\*\*  
GENERIC PART NUMBER: 6508  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER: HARRIS  
\*\*\*\*\*

LDC: NO. OF PARTS: 1 DATA SOURCE: RI/TIROSN(6/80) REF.NO.: 1

\*\*\*\*\*  
ION ANGLE ENERGY BIAS RUNS FLUENCE  
\*\*\*\*\*

\*\*\*\*\*  
AR 0 212MEV 5V 2 3.5E5  
\*\*\*\*\*

\*\*\*\*\*  
REMARKS:  
\*\*\*\*\*

\*\*\*\*\*  
GENERIC PART NUMBER: 6508  
\*\*\*\*\*

\*\*\*\*\*  
MANUFACTURER: HARRIS  
\*\*\*\*\*

LDC: NO. OF PARTS: 1 DATA SOURCE: RI/TIROSN(6/80) REF.NO.: 1

\*\*\*\*\*  
ION ANGLE ENERGY BIAS RUNS FLUENCE  
\*\*\*\*\*

\*\*\*\*\*  
AR 65 7MEV 5.5V 1 1.7E5  
\*\*\*\*\*

\*\*\*\*\*  
REMARKS:  
\*\*\*\*\*

ORIGINAL PAGE 13  
OF POOR QUALITY

\*\*\*\*\*  
GENERIC PART NUMBER: 6508  
\*\*\*\*\*  
FUNCTION: 1KX1 RAM  
TECHNOLOGY: CMOS  
RECORD: 100009

\*\*\*\*\*  
MANUFACTURER: HARRIS  
PART NUMBER: HM6508  
SPECIFICATION: \*\*\*\*\*

LDC: NO. OF PARTS: 1 DATA SOURCE: RI/TIROS(6/80) REF. NO.: 1

ION ANGLE ENERGY BIAS RUNS FLUENCE  
AR 0 7MEV 5.5V 1 4.1E5

\*\*\*\*\*  
ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS:

\*\*\*\*\*  
ORIGINAL PAGE 13  
OF POOR QUALITY  
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\*\*\*\*\*  
GENERIC PART NUMBER: 6508  
\*\*\*\*\*  
FUNCTION: 1KX1 RAM  
TECHNOLOGY: CMOS  
RECORD: 100010

\*\*\*\*\*  
MANUFACTURER: HARRIS  
PART NUMBER: HM6508  
SPECIFICATION: \*\*\*\*\*

LDC: NO. OF PARTS: 1 DATA SOURCE: RI/TIROS(6/80) REF. NO.: 1

ION ANGLE ENERGY BIAS RUNS FLUENCE  
AR 65 15MEV 5.5V 1 2.4E5

\*\*\*\*\*  
ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 6508  
\*\*\*\*\*  
FUNCTION: 1KX1 RAM  
RECORD: 100011

\*\*\*\*\*  
MANUFACTURER: HARRIS  
PART NUMBER: HM6508  
SPECIFICATION: \*\*\*\*\*

LDC: NO. OF PARTS: 1 DATA SOURCE: RI/TIROS(6/80) REF. NO.: 1

ION ANGLE ENERGY BIAS RUNS FLUENCE  
AR 65 24MEV 5V 1 2.3E5

\*\*\*\*\*  
ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 6508  
\*\*\*\*\*  
FUNCTION: 1KX1 RAM  
RECORD: 100012

\*\*\*\*\*  
MANUFACTURER: HARRIS  
PART NUMBER: HM6508  
SPECIFICATION: \*\*\*\*\*

LDC: NO. OF PARTS: 1 DATA SOURCE: RI/TIROS(6/80) REF. NO.: 1

ION ANGLE ENERGY BIAS RUNS FLUENCE  
AR 0 24MEV 5V 1 1.E6

\*\*\*\*\*  
ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS:

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OF POOR QUALITY

GENERIC PART NUMBER: 6508  
FUNCTION: 1KX1 RAM  
RECORD: 100013

MANUFACTURER: HARRIS  
PART NUMBER: HM6508  
SPECIFICATION: -----

LDC: NO. OF PARTS: 1 DATA SOURCE: RI/TIROS(6/80) REF. NO.: 1

ION ANGLE ENERGY BIAS RUNS FLUENCE  
AR 0 34MEV 5V 2 8.4E5

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS:

GENERIC PART NUMBER: 6508  
FUNCTION: 1KX1 RAM  
RECORD: 100014

MANUFACTURER: HARRIS  
PART NUMBER: HM6508  
SPECIFICATION: -----

LDC: NO. OF PARTS: 2 DATA SOURCE: RI/TIROS(6/80) REF. NO.: 1

ION ANGLE ENERGY BIAS RUNS FLUENCE  
AR 60 41MEV 5V 2 6.4E4

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
1.E-6 8.E-7 NL

REMARKS:

ORIGINAL PAGE IS  
OF POOR QUALITY.

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
6508	1KX1 RAM	CMLS	100015

MANUFACTURER	PART NUMBER	SPECIFICATION
HARRIS	HM6508	

LDC: NO. OF PARTS: 1 DATA SOURCE: RI/TIROS(6/80) REF.NO.: 1

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
AR	60	41MEV	5V	1	6.3E4

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
7.E-7	7.E-7
	NL

REMARKS:

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
6508	1KX1 RAM	CMLS	100016

MANUFACTURER	PART NUMBER	SPECIFICATION
HARRIS	HM6508	

LDC: NO. OF PARTS: 4 DATA SOURCE: RI/TIROS(6/80) REF.NO.: 1

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
AR	0	45MEV	5	4	8.8E5

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
1.2E-6	5.E-7
	NL

REMARKS:

\*\*\*\*\*

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\*\*\*\*\*  
 GENERIC PART NUMBER: 6508  
 FUNCTION: 1KX1 RAM  
 TECHNOLOGY: CMOS  
 RECORD: 100017

\*\*\*\*\*  
 MANUFACTURER: HARRIS  
 PART NUMBER: HM6508  
 SPECIFICATION: \*\*\*\*\*

LDC: NO. OF PARTS: 1 DATA SOURCE: RI/TIROS(6/80) REF.NO.: 1

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
AR	0	67MEV	5V	1	9.2E5

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
5.E-7			NL

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 6508  
 FUNCTION: 1KX1 RAM  
 TECHNOLOGY: CMOS  
 RECORD: 100018

\*\*\*\*\*  
 MANUFACTURER: HARRIS  
 PART NUMBER: HM6508  
 SPECIFICATION: \*\*\*\*\*

LDC: NO. OF PARTS: 2 DATA SOURCE: RI/TIROS(6/80) REF.NO.: 1

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
AR	60	212MEV	5V	3	1.2E4

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
2.E-5	2.E-5	2.E-3	7.E-4

REMARKS: LATCHUP IN ALL PARTS IN ALL RUNS

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LDC: NO. OF PARTS: 3 DATA SOURCE: RI/TIROSN(6/80) REF.NO.: 1

	ERROR CROSS SECTION		LATCH CROSS SECTION	
	MAX	MEAN	MAX	MEAN
3.E-5	3.E-5	2.E-5	3.E-4	2.E-4

REMARKS: LATCHUP IN ALL PARTS IN ALL RUNS

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (1/81) REF. NO.: 2

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
2.1E-6	1.9E-6		NL

REMARKS: PROTOTYPE RADIATION HARD PROCESS

GENERIC PART NUMBER: 6508

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
6508	1KX1 RAM	CMOS	100030

MANUFACTURER	PART NUMBER	SPECIFICATION
HARRIS	HAG508	

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (1/81) REF. NO.: 2

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	0	120MEV	5V	2	3.6E5

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
NE	NL

REMARKS: PROTOTYPE RADIATION HARD PROCESS

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
6508	1KX1 RAM	CMOS	100063

MANUFACTURER	PART NUMBER	SPECIFICATION
HARRIS	HM6508	

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	56MEV	5V	1	2.5E9

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
NE	NL

REMARKS:

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\*\*\*\*\*  
GENERIC PART NUMBER: 6508  
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\*\*\*\*\*

GENERIC PART NUMBER 6508  
FUNCTION 1KX1 RAM  
TECHNOLOGY CMOS  
RECORD 100064

MANUFACTURER HARRIS  
PART NUMBER HM6508  
SPECIFICATION

LDC: NO. OF PARTS: 2 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION ANGLE ENERGY BIAS RUNS FLUENCE  
P+ 0 56MEV 5V 2 5.E9

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS:

GENERIC PART NUMBER 6508  
FUNCTION 1KX1 RAM  
TECHNOLOGY CMOS  
RECORD 100065

MANUFACTURER HARRIS  
PART NUMBER HS6508RH  
SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION ANGLE ENERGY BIAS RUNS FLUENCE  
P+ 0 56MEV 5V 1 2.5E9

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS:

ORIGINAL PAGE 13  
OF POOR QUALITY

\*\*\*\*\*  
GENERIC PART NUMBER: 6508  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
6508	1KX1 RAM	CMOS	100159

MANUFACTURER	PART NUMBER	SPECIFICATION
HARRIS	HM1-6508-2	

LDC: NO. OF PARTS: 4 DATA SOURCE: JPL (2/82) REF. NO.: 12

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	595MEV	10V	4	1.4E9

	ERROR CROSS SECTION		LATCH CROSS SECTION		
	MAX	MEAN	MAX	MEAN	NL
1	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000	0.000
29	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.000
31	0.000	0.000	0.000	0.000	0.000
32	0.000	0.000	0.000	0.000	0.000
33	0.000	0.000	0.000	0.000	0.000
34	0.000	0.000	0.000	0.000	0.000
35	0.000	0.000	0.000	0.000	0.000
36	0.000	0.000	0.000	0.000	0.000
37	0.000	0.000	0.000	0.000	0.000
38	0.000	0.000	0.000	0.000	0.000
39	0.000	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000	0.000
41	0.000	0.000	0.000	0.000	0.000
42	0.000	0.000	0.000	0.000	0.000
43	0.000	0.000	0.000	0.000	0.000
44	0.000	0.000	0.000	0.000	0.000
45	0.000	0.000	0.000	0.000	0.000
46	0.000	0.000	0.000	0.000	0.000
47	0.000	0.000	0.000	0.000	0.000
48	0.000	0.000	0.000	0.000	0.000
49	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000
51	0.000	0.000	0.000	0.000	0.000
52	0.000	0.000	0.000	0.000	0.000
53	0.000	0.000	0.000	0.000	0.000
54	0.000	0.000	0.000	0.000	0.000
55	0.000	0.000	0.000	0.000	0.000
56	0.000	0.000	0.000	0.000	0.000
57	0.000	0.000	0.000	0.000	0.000
58					

REMARKS:

ORIGINAL PAGE IS  
OF POOR QUALITY

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
6508	1KX1 RAM	CMD5	100160

MANUFACTURER	PART NUMBER	SPECIFICATION
HARRIS	HS6508RH-2	

LDC: NO. OF PARTS: 4 DATA SOURCE: JPL (2/82) REF. NO.: 12

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P <sup>+</sup>	0	595MEV	10V	4	1.8E <sup>9</sup>

ERROR	CROSS SECTION		LATCH CROSS SECTION		NL
	MAX	MEAN	MAX	MEAN	
1	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000	0.000
29	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.000
31	0.000	0.000	0.000	0.000	0.000
32	0.000	0.000	0.000	0.000	0.000
33	0.000	0.000	0.000	0.000	0.000
34	0.000	0.000	0.000	0.000	0.000
35	0.000	0.000	0.000	0.000	0.000
36	0.000	0.000	0.000	0.000	0.000
37	0.000	0.000	0.000	0.000	0.000
38	0.000	0.000	0.000	0.000	0.000
39	0.000	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000	0.000
41	0.000	0.000	0.000	0.000	0.000
42	0.000	0.000	0.000	0.000	0.000
43	0.000	0.000	0.000	0.000	0.000
44	0.000	0.000	0.000	0.000	0.000
45	0.000	0.000	0.000	0.000	0.000
46	0.000	0.000	0.000	0.000	0.000
47	0.000	0.000	0.000	0.000	0.000
48	0.000	0.000	0.000	0.000	0.000
49	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000
51	0.000	0.000	0.000	0.000	0.000
52	0.000	0.000	0.000	0.000	0.000
53	0.000	0.000	0.000	0.000	0.000
54	0.000	0.000	0.000	0.000	0.000
55	0.000	0.000	0.000	0.000	0.000
56	0.000	0.000	0.000	0.000	0.000
57	0.000	0.000	0.000	0.000	0.000
58					

REMARKS:

GENERIC PART NUMBER: 6508

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GENERIC PART NUMBER 6508  
 FUNCTION 1KX1 RAM  
 TECHNOLOGY CMOS  
 RECORD 100164

MANUFACTURER HARRIS  
 PART NUMBER HM1-6508-2  
 SPECIFICATION

LDC: NO. OF PARTS: 2 DATA SOURCE: JPL (2/82) REF. NO.: 12

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 P+ 0 160MEV 10V 2 8.5E9

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 NE NL

REMARKS:

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GENERIC PART NUMBER 6508  
 FUNCTION 1KX1 RAM  
 TECHNOLOGY CMOS  
 RECORD 100165

MANUFACTURER HARRIS  
 PART NUMBER HS6508RH-2  
 SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (2/82) REF. NO.: 12

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 P+ 0 160MEV 10V 1 4.6E9

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 NE NL

REMARKS:

GENERIC PART NUMBER: 6551

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
6551	256X4 RAM	CMOS	100161

MANUFACTURER	PART NUMBER	SPECIFICATION
HARRIS	HM3-6551-9	

LDC: NO. OF PARTS: 4 DATA SOURCE: JPL (2/82) REF.NO.: 12

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P <sup>+</sup>	0	595MEV	10V	4	2.8E10

ERROR CROSS SECTION		LATCH CROSS SECTION		
MAX	MEAN	MAX	MEAN	NL
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REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
6551			
6551	256X4 RAM	CMOS	100162

MANUFACTURER	PART NUMBER	SPECIFICATION
HARRIS	HS6551RH-9	

DC: NO. OF PARTS: 4 DATA SOURCE: JPL (2/82) REF. NO.: 12

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
2+	0	595MEV	10V	4	2.6E11

	ERROR CROSS SECTION		LATCH CROSS SECTION		NL
	MAX	MEAN	MAX	MEAN	
1	---	---	---	---	---
2	---	---	---	---	---
3	---	---	---	---	---
4	---	---	---	---	---
5	---	---	---	---	---
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7	---	---	---	---	---
8	---	---	---	---	---
9	---	---	---	---	---
10	---	---	---	---	---
11	---	---	---	---	---
12	---	---	---	---	---
13	---	---	---	---	---
14	---	---	---	---	---
15	---	---	---	---	---
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17	---	---	---	---	---
18	---	---	---	---	---
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24	---	---	---	---	---
25	---	---	---	---	---
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27	---	---	---	---	---
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32	---	---	---	---	---
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78	---	---	---	---	---
79	---	---	---	---	---
80	---	---	---	---	---
81	---	---	---	---	---
82	---	---	---	---	---
83	---	---	---	---	---
84	---	---	---	---	---
85	---	---	---	---	---
86	---	---	---	---	---
87	---	---	---	---	---
88	---	---	---	---	---
89	---	---	---	---	---

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 6551  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
6551	256X4 RAM	CMOS	100166

MANUFACTURER	PART NUMBER	SPECIFICATION
HARRIS	HS6551RH	

LDC: NO. OF PARTS: 4 DATA SOURCE: JPL (2/82) REF. NO.: 12

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	160MEV	10V	4	3.2E10

ERROR CROSS SECTION	LATCH CROSS SECTION	
MAX	MAX	NE
MEAN	MEAN	NL

REMARKS:

ORIGINAL PAGE IS  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
6551	256X4 RAM	CMOS	100167

MANUFACTURER	PART NUMBER	SPECIFICATION
HARRIS	HM3-6551-9	

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (2/82) REF. NO.: 12

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	160MEV	10V	1	3.2E9

ERROR CROSS SECTION	LATCH CROSS SECTION	
MAX	MAX	NE
MEAN	MEAN	NL

REMARKS:

GENERIC PART NUMBER: 6605  
FUNCTION: 4KX1 RAM  
RECORD: 100110

MANUFACTURER: MOTOROLA  
PART NUMBER: MCM6605A  
SPECIFICATION:

LDC: NO. OF PARTS: 3 DATA SOURCE: RI/SAMSO REF.NO.: 9

ION ANGLE ENERGY BIAS RUNS FLUENCE  
AR \* \* 12V 29

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
4.4E-6 NL

REMARKS: ANGLES= 0 TO 60: ENERGY=30MEV TO 115 MEV: STD.DEV = 9.2E-6

GENERIC PART NUMBER: 6605  
FUNCTION: 4KX1 RAM  
RECORD: 100111

MANUFACTURER: MOTOROLA  
PART NUMBER: MCM6605A  
SPECIFICATION:

LDC: NO. OF PARTS: 2 DATA SOURCE: RI/SAMSO REF.NO.: 9

ION ANGLE ENERGY BIAS RUNS FLUENCE  
AR 0 \* 12V 9

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
5.1E-6 NL

REMARKS: ENERGY= 14MEV TO 105MEV: STD. DEV = 3.2E-6

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
74LS162	COUNTER	TTL	100124

MANUFACTURER	PART NUMBER	SPECIFICATION
TEXAS INSTRUMENTS	TMS74LS162	

LDC: NO. OF PARTS: 1 DATA SOURCE: MIT/JPL REF. NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	0	120MEV	5V	1	

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
*1.2E-5	*1.2E-5
	NL

REMARKS: \* ERROR CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
74LS95	4BIT SHIFT REGISTER	TTL	100123

MANUFACTURER	PART NUMBER	SPECIFICATION
TEXAS INSTRUMENTS	TMS74LS95	

LDC: NO. OF PARTS: 1 DATA SOURCE: MIT/JPL REF. NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	0	120MEV	5V	1	

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
9.8E-6	9.8E-6
	NL

REMARKS:

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 OF POOR QUALITY

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 GENERIC PART NUMBER  
 74162  
 FUNCTION  
 COUNTER  
 TECHNOLOGY  
 TTL  
 RECORD  
 100129  
 MANUFACTURER  
 FAIRCHILD  
 PART NUMBER  
 74162  
 SPECIFICATION  
 LDC:

NO. OF PARTS: 1 DATA SOURCE: MIT/JPL REF. NO.: 10  
 ION ANGLE ENERGY BIAS RUNS FLUENCE  
 KR 65 120MEV 5V 1  
 ERROR CROSS SECTION  
 MAX MEAN  
 NE

REMARKS:

NL

\*\*\*\*\*  
 GENERIC PART NUMBER  
 7495  
 FUNCTION  
 4BIT SHIFT REGISTER  
 TECHNOLOGY  
 TTL  
 RECORD  
 100125  
 MANUFACTURER  
 TEXAS INSTRUMENTS  
 PART NUMBER  
 TMS7495  
 SPECIFICATION  
 LDC:

NO. OF PARTS: 2 DATA SOURCE: MIT/JPL REF. NO.: 10  
 ION ANGLE ENERGY BIAS RUNS FLUENCE  
 KR 0 120MEV 5V 2  
 ERROR CROSS SECTION  
 MAX MEAN  
 3.5E-6

REMARKS:

NL

\*\*\*\*\*  
 GENERIC PART NUMBER: 76L70

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GENERIC PART NUMBER  
 76L70  
 FUNCTION  
 8BIT SHIFT REGISTER  
 TECHNOLOGY  
 TTL  
 RECORD  
 100118

MANUFACTURER  
 NATIONAL  
 PART NUMBER  
 DM76L70  
 SPECIFICATION

LDC: NO. OF PARTS: 3 DATA SOURCE: MIT/JPL REF.NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	0	120MEV	5V	3	

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
	4.5E-6		NL

REMARKS:

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GENERIC PART NUMBER  
 76L75  
 FUNCTION  
 COUNTER  
 TECHNOLOGY  
 TTL  
 RECORD  
 100119

MANUFACTURER  
 NATIONAL  
 PART NUMBER  
 DM76L75  
 SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: MIT/JPL REF.NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	0	120MEV	5V	1	

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
	1.5E-7		NL

REMARKS:

GENERIC PART NUMBER  
 76L75  
 FUNCTION  
 COUNTER  
 TECHNOLOGY  
 TTL  
 RECORD  
 100120

MANUFACTURER  
 NATIONAL  
 PART NUMBER  
 DM76L75  
 SPECIFICATION

LDC: NO. OF PARTS: 3 DATA SOURCE: MIT/JPL REF.NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	65	120MEV	5V	6	

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
	7.9E-7		NL

REMARKS:

GENERIC PART NUMBER  
 8X350  
 FUNCTION  
 256X8 RAM  
 TECHNOLOGY  
 TTL  
 RECORD  
 100066

MANUFACTURER  
 SIGNETICS  
 PART NUMBER  
 8X350  
 SPECIFICATION

LDC: NO. OF PARTS: 3 DATA SOURCE: JPL (7/80) REF.NO.: 5

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	56MEV	5V	5	2.5E9

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
5.6E-10	1.8E-10		NL

1.8E-10

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\*\*\*\*\*  
GENERIC PART NUMBER: 8X350  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER  
8X350  
FUNCTION  
256X8 RAM  
TECHNOLOGY  
TTL  
RECORD  
100067

MANUFACTURER  
SIGNETICS  
PART NUMBER  
8X350  
SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION ANGLE ENERGY BIAS RUNS FLUENCE  
P+ 0 36MEV 5V 1 3.1E8

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
6.5E-11 6.5E-11 NL

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER  
8X350  
FUNCTION  
256X8 RAM  
TECHNOLOGY  
TTL  
RECORD  
100068

MANUFACTURER  
SIGNETICS  
PART NUMBER  
8X350  
SPECIFICATION

LDC: NO. OF PARTS: 2 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION ANGLE ENERGY BIAS RUNS FLUENCE  
P+ 0 26MEV 5V 2 3.1E9

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
2.7E-11 3.3E-11 NL

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 8X350  
\*\*\*\*\*

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GENERIC PART NUMBER: 8X350  
 FUNCTION: 256X8 RAM  
 TECHNOLOGY: TTL  
 RECORD: 100069

MANUFACTURER: SIGNETICS  
 PART NUMBER: 8X350  
 SPECIFICATION:

LDC: NO. OF PARTS: 2 DATA SOURCE: JPL (7/80) REF.NO.: 5

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	18MEV	5V	3	1.E10

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
2.E-13	4.9E-14		NL

REMARKS:

GENERIC PART NUMBER: 93L422  
 FUNCTION: 256X4 RAM  
 TECHNOLOGY: TTL  
 RECORD: 100031

MANUFACTURER: FAIRCHILD  
 PART NUMBER: 93L422  
 SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (1/81) REF.NO.: 2

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	60	120MEV	5V	4	6.5E4

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
5.4E-6	4.8E-6		NL

REMARKS:

ORIGINAL PAGE IS  
 OF POOR QUALITY

\*\*\*\*\*  
 GENERIC PART NUMBER: 93L422  
 \*\*\*\*\*

RECORD  
 -----  
 100032

TECHNOLOGY  
 -----  
 TTL

FUNCTION  
 -----  
 256X4 RAM

SPECIFICATION  
 -----

PART NUMBER  
 -----  
 93L422

MANUFACTURER  
 -----  
 FAIRCHILD

REF.NO.: 2

NO. OF PARTS: 2 DATA SOURCE: JPL (1/81)

LDC:

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
KR	0	120MEV	5V	4	2.2E4

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
1.0E-5	8.0E-6	---	NL

REMARKS:

ORIGINAL PAGE IS  
 OF POOR QUALITY

RECORD  
 -----  
 100033

TECHNOLOGY  
 -----  
 TTL

FUNCTION  
 -----  
 256X4 RAM

SPECIFICATION  
 -----

PART NUMBER  
 -----  
 93L422

MANUFACTURER  
 -----  
 FAIRCHILD

REF.NO.: 2

NO. OF PARTS: 1 DATA SOURCE: JPL (1/81)

LDC:

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
---	---	---	---	---	---
0	0	95MEV	5.5	2	1.8E4

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
1.3E-5	1.2E-5	---	NL

REMARKS:

GENERIC PART NUMBER 93L422  
 FUNCTION 256X4 RAM  
 TECHNOLOGY TTL  
 RECORD 100043

MANUFACTURER FAIRCHILD  
 PART NUMBER 93L422  
 SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (11/80) REF. NO.: 3

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 P+ 0 200MEV 5V 5 5.E9

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 7.E-11 4.E-11 NL

REMARKS:

ORIGINAL PAGE 13  
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GENERIC PART NUMBER 93L422  
 FUNCTION 256X4 RAM  
 TECHNOLOGY TTL  
 RECORD 100044

MANUFACTURER FAIRCHILD  
 PART NUMBER 93L422  
 SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (11/80) REF. NO.: 3

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 P+ 0 200MEV 5V 4 4.E9

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 2.E-11 1.E-11 NL

REMARKS: DEVICES DELIDDED



GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
93L422	256X4 RAM	TTL	100045
MANUFACTURER	PART NUMBER	SPECIFICATION	
FAIRCHILD	93L422		

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (11/80) REF. NO.: 3

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	56MEV	5V	4	4.E9

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
1.E-10	3.E-11		NL

REMARKS: DEVICES DELIDDED

\*\*\*\*\*

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 OF POOR QUALITY

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
93L422	256X4 RAM	TTL	100046
MANUFACTURER	PART NUMBER	SPECIFICATION	
AMD	93L422		

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (11/80) REF. NO.: 3

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	200MEV	5V	3	3.E9

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
1.E-10	1.E-10		NL

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
93L422	256X4 RAM	TTL	100047

MANUFACTURER	PART NUMBER	SPECIFICATION
AMD	93L422	

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (1/81) REF. NO.: 3

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	56MEV	5V	3	3.E9

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
2.E-10	1.E-10
	NL

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
93L422	256X4 RAM	TTL	100052

MANUFACTURER	PART NUMBER	SPECIFICATION
FAIRCHILD	93L422	

LDC: NO. OF PARTS: 6 DATA SOURCE: JPL (7/80) REF. NO.: 4

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	130MEV	5V	32	8.E11

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
1.5E-11	8.8E-12
	NL

REMARKS:

ORIGINAL PAGE IS  
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GENERIC PART NUMBER  
 93L422  
 FUNCTION  
 256X4 RAM  
 TECHNOLOGY  
 TTL  
 RECORD  
 100053

MANUFACTURER  
 FAIRCHILD  
 PART NUMBER  
 93L422  
 SPECIFICATION

LDC: NO. OF PARTS: 5 DATA SOURCE: JPL (7/80) REF. NO.: 4

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 P+ 0 30MEV 5V 14 3.5E10

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 1.7E-11 7.E-12 NL

REMARKS:

ORIGINAL PART ID  
 93L422

GENERIC PART NUMBER  
 93L422  
 FUNCTION  
 256X4 RAM  
 TECHNOLOGY  
 TTL  
 RECORD  
 100073

MANUFACTURER  
 FAIRCHILD  
 PART NUMBER  
 93L422  
 SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 P+ 0 36MEV 5V 1 6.2E8

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 3.2E-11 3.2E-11 NL

REMARKS:

GENERIC PART NUMBER 93L422  
FUNCTION 256X4 RAM  
RECORD 100074

TECHNOLOGY

TTL

MANUFACTURER FAIRCHILD  
PART NUMBER 93L422  
SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION ANGLE 0 ENERGY 26MEV BIAS 5V RUNS 1 FLUENCE 1.25E9

ERROR CROSS SECTION  
MAX 8E-12  
MEAN 8E-12  
LATCH CROSS SECTION  
MAX  
MEAN NL

REMARKS:

ORIGINAL PAGE IS  
OF POOR QUALITY

GENERIC PART NUMBER 93L422  
FUNCTION 256X4 RAM  
RECORD 100075

TECHNOLOGY

TTL

MANUFACTURER FAIRCHILD  
PART NUMBER 93L422  
SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION ANGLE 0 ENERGY 18MEV BIAS 5V RUNS 1 FLUENCE 1.25E9

ERROR CROSS SECTION  
MAX  
MEAN  
LATCH CROSS SECTION  
MAX  
MEAN  
NE NL

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 93L422  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
93L422	256X4 RAM	TTL	100076
MANUFACTURER	PART NUMBER	SPECIFICATION	
FAIRCHILD	93L422		

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF.NO.: 5

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	15MEV	5V	2	5.E9

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
1.6E-12	1.6E-12
	MEAN
	NL

REMARKS:

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
93L422	256X4 RAM	TTL	100152
MANUFACTURER	PART NUMBER	SPECIFICATION	
FAIRCHILD	93L422		

LDC: NO. OF PARTS: 3 DATA SOURCE: JPL (2/82) REF.NO.: 12

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	595MEV	10V	13	1.3E9

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
2.3E-10	1.8E-10
	MEAN
	NL

REMARKS:

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GENERIC PART NUMBER: 93L422  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
93L422	256X4 RAM	TTL	100154

MANUFACTURER	PART NUMBER	SPECIFICATION
FAIRCHILD	93L422	

LDC: NO. OF PARTS: 4 DATA SOURCE: JPL (2/82) REF.NO.: 12

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+		355MEV	10V	8	2.5E9

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
1.5E-10	1.2E-10
	MEAN
	NL

REMARKS:

ORIGINAL PAGE IS  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
93L422	256X4 RAM	TTL	100156

MANUFACTURER	PART NUMBER	SPECIFICATION
FAIRCHILD	93L422	

LDC: NO. OF PARTS: 3 DATA SOURCE: JPL (2/82) REF.NO.: 12

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	160MEV	10V	7	2.3E9

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
	6.E-11
	MEAN
	NL

REMARKS:

GENERIC PART NUMBER: 93L422  
 FUNCTION: 256X4 RAM  
 TECHNOLOGY: TTL  
 RECORD: 100168  
 MANUFACTURER: FAIRCHILD  
 PART NUMBER: 931422  
 SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 P+ 0 26MEV 5V 1 1.25E9

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 3E-11 3E-11

REMARKS: DELIDDED

GENERIC PART NUMBER: 93L422  
 FUNCTION: 256X4 RAM  
 TECHNOLOGY: TTL  
 RECORD: 100169  
 MANUFACTURER: FAIRCHILD  
 PART NUMBER: 93L422  
 SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 P+ 0 18MEV 5V 3 7.5E9

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 4E-12 4E-12

REMARKS: DELIDDED

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
93L425	1KX1 RAM	TTL	100153

MANUFACTURER	PART NUMBER	SPECIFICATION
FAIRCHILD	93L425	

LDC: NO. OF PARTS: 3 DATA SOURCE: JPL (2/82) REF.NO.: 12

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	595MEV	10V	11	9.E8.

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
	NL

REMARKS:

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
93L425	1KX1 RAM	TTL	100155

MANUFACTURER	PART NUMBER	SPECIFICATION
FAIRCHILD	93L425	

LDC: NO. OF PARTS: 2 DATA SOURCE: JPL (2/82) REF.NO.: 12

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	355MEV	10V	4	1.1E9

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
1.2E-10	9.9E-11
	NL

REMARKS:



\*\*\*\*\*  
GENERIC PART NUMBER 93L425  
\*\*\*\*\*  
FUNCTION 1KX1 RAM  
TECHNOLOGY TTL  
RECORD 100157

\*\*\*\*\*  
MANUFACTURER FAIRCHILD  
PART NUMBER 93L425  
SPECIFICATION  
\*\*\*\*\*

LDC: NO. OF PARTS: 3 DATA SOURCE: JPL (2/82) REF. NO.: 12

ION ANGLE 0 ENERGY 160MEV BIAS 10V RUNS 9 FLUENCE 4.9E9  
P+ 0 160MEV 10V 9 4.9E9

\*\*\*\*\*  
ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
7.6E-11 4.1E-11 NL  
\*\*\*\*\*

REMARKS:

\*\*\*\*\*  
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\*\*\*\*\*  
GENERIC PART NUMBER 93S10  
\*\*\*\*\*  
FUNCTION COUNTER  
TECHNOLOGY TTL  
RECORD 100130

\*\*\*\*\*  
MANUFACTURER FAIRCHILD  
PART NUMBER 93S10  
SPECIFICATION  
\*\*\*\*\*

LDC: NO. OF PARTS: 1 DATA SOURCE: MIT/JPL REF. NO.: 10

ION ANGLE 0 ENERGY 120MEV BIAS 5V RUNS 2 FLUENCE  
KR 0 120MEV 5V 2

\*\*\*\*\*  
ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
2.2E-7 NL  
\*\*\*\*\*

REMARKS:

GENERIC PART NUMBER: 93S10  
 FUNCTION: COUNTER  
 TECHNOLOGY: TTL  
 RECORD: 100131

MANUFACTURER: FAIRCHILD  
 PART NUMBER: 93S10  
 SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: MIT/JPL REF.NO.: 10

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	65	120MEV	5V	1	

ERROR CROSS SECTION MAX	MEAN	LATCH CROSS SECTION MAX	MEAN	NL
	3.4E-6			

REMARKS:

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GENERIC PART NUMBER: 93422  
 FUNCTION: 256X4 RAM  
 TECHNOLOGY: TTL  
 RECORD: 100048

MANUFACTURER: AMD  
 PART NUMBER: 93422  
 SPECIFICATION:

LDC: NO. OF PARTS: 4 DATA SOURCE: JPL (11/80) REF.NO.: 3

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	200MEV	5V	18	1.9E10

ERROR CROSS SECTION MAX	MEAN	LATCH CROSS SECTION MAX	MEAN	NL
1.E-10	2.E-11			

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 93422  
 FUNCTION: 256X4 RAM  
 TECHNOLOGY: TTL  
 RECORD: 100049  
 \*\*\*\*\*

\*\*\*\*\*  
 MANUFACTURER: AMD  
 PART NUMBER: 93422  
 SPECIFICATION: \*\*\*\*\*  
 \*\*\*\*\*

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (11/80) REF.NO.: 3

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 ---  
 P+ 0 56MEV 5V 3 3.E9

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 2.E-10 2.E-10 NL

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 93422  
 FUNCTION: 256X4 RAM  
 TECHNOLOGY: TTL  
 RECORD: 100070  
 \*\*\*\*\*  
 MANUFACTURER: FAIRCHILD  
 PART NUMBER: 93422  
 SPECIFICATION: \*\*\*\*\*  
 \*\*\*\*\*

LDC: NO. OF PARTS: 2 DATA SOURCE: JPL (7/80) REF.NO.: 5

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 ---  
 P+ 0 36MEV 5V 4 4.2E9

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 8.5E-12 7.9E-12 NL

REMARKS:

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GENERIC PART NUMBER: 93422

GENERIC PART NUMBER 93422  
 FUNCTION 256X4 RAM  
 TECHNOLOGY TTL  
 RECORD 100071

MANUFACTURER FAIRCHILD  
 PART NUMBER 93422  
 SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	18MEV	5V	3	5.E9

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN

NE NL

REMARKS:

ORIGINAL PAGE IS  
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GENERIC PART NUMBER 93422  
 FUNCTION 256X4 RAM  
 TECHNOLOGY TTL  
 RECORD 100072

MANUFACTURER FAIRCHILD  
 PART NUMBER 93422  
 SPECIFICATION

LDC: NO. OF PARTS: 2 DATA SOURCE: JPL (7/80) REF. NO.: 5

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	26MEV	5V	4	1.4E10

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
4.7E-12	2.7E-12		

NL

REMARKS:

GENERIC PART NUMBER: 93423

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 GENERIC PART NUMBER: 93423  
 \*\*\*\*\*

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 \*\*\*\*\*

GENERIC PART NUMBER 93423  
 FUNCTION 1K RAM  
 TECHNOLOGY TTL  
 RECORD 100050

MANUFACTURER FAIRCHILD  
 PART NUMBER 93423  
 SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (11/80) REF. NO.: 3

ION ANGLE 0  
 ENERGY 200MEV  
 BIAS 5V  
 RUNS 1  
 FLUENCE 1.E9

ERROR CROSS SECTION  
 MAX 2.E-10  
 MEAN 2.E-10  
 LATCH CROSS SECTION  
 MAX  
 MEAN NL

REMARKS:

ORIGINAL PAGE 18  
 OF POOR QUALITY

GENERIC PART NUMBER 93423  
 FUNCTION 1K RAM  
 TECHNOLOGY TTL  
 RECORD 100051

MANUFACTURER FAIRCHILD  
 PART NUMBER 93423  
 SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (11/80) REF. NO.: 3

ION ANGLE OKL7)  
 ENERGY V  
 BIAS 5V  
 RUNS 7  
 FLUENCE 7.E9

ERROR CROSS SECTION  
 MAX 6.E-12  
 MEAN 8.E-11  
 LATCH CROSS SECTION  
 MAX  
 MEAN NL

REMARKS:

\*\*\*\*\*  
 GENERIC PART NUMBER: 93423  
 \*\*\*\*\*

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 \*\*\*\*\*

\*\*\*\*\*  
GENERIC PART NUMBER: 93423  
\*\*\*\*\*  
FUNCTION: 1K RAM  
RECORD: 100054  
\*\*\*\*\*  
TECHNOLOGY: TTL  
\*\*\*\*\*  
SPECIFICATION:   
\*\*\*\*\*  
MANUFACTURER: FAIRCHILD  
PART NUMBER: 93423  
\*\*\*\*\*

LDC: NO. OF PARTS: 4 DATA SOURCE: JPL (7/80) REF. NO.: 4

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	130MEV	5V	10	2.5E10
*****					
ERROR CROSS SECTION			LATCH CROSS SECTION		
MAX	MEAN		MAX	MEAN	
7.8E-12	5.5E-12			NL	

REMARKS:

\*\*\*\*\*  
GENERIC PART NUMBER: 93423  
\*\*\*\*\*  
FUNCTION: 1K RAM  
RECORD: 100055  
\*\*\*\*\*  
TECHNOLOGY: TTL  
\*\*\*\*\*  
SPECIFICATION:   
\*\*\*\*\*  
MANUFACTURER: FAIRCHILD  
PART NUMBER: 93423  
\*\*\*\*\*

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL (7/80) REF. NO.: 4

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	60	130MEV	5V	5	1.2E10
*****					
ERROR CROSS SECTION			LATCH CROSS SECTION		
MAX	MEAN		MAX	MEAN	
8.6E-12	3.8E-12			NL	

REMARKS:

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\*\*\*\*\*  
 GENERIC PART NUMBER: 93423  
 \*\*\*\*\*

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
93423	1K RAM	TTL	100056
MANUFACTURER	PART NUMBER	SPECIFICATION	
FAIRCHILD	93423		

REF. NO.: 4

NO. OF PARTS: 4 DATA SOURCE: JPL (7/80)

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
P+	0	30MEV	5V	12	3.E10

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
5.9E-12	3.5E-12
	NL

REMARKS:

ORIGINAL PAGE IS  
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RECORD  
 100115

TECHNOLOGY  
 TTL

GENERIC PART NUMBER  
 93471

SPECIFICATION

MANUFACTURER  
 FAIRCHILD

REF. NO.: 9

NO. OF PARTS: 1 DATA SOURCE: RI/SAMSO

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
AR	0	*	5V	4	

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
	6.6E-6

REMARKS: ENERGY= 14MEV TO 115MEV: STD. DEV. = 1.5E-6

\*\*\*\*\*  
 GENERIC PART NUMBER: 9900  
 \*\*\*\*\*

\*\*\*\*\*  
 GENERIC PART NUMBER: 9900  
 FUNCTION MICROPROCESSOR  
 TECHNOLOGY IIL  
 RECORD 100091

MANUFACTURER TEXAS INSTRUMENTS  
 PART NUMBER SBP9900A  
 SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL/RI/NWSC REF.NO.: 8

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 KR 0 144MEV 1 5.E6

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 \*8.E-6 \*8.E-6 NL

REMARKS: I(INU)=604MA; F=3MHZ \* CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

\*\*\*\*\*  
 GENERIC PART NUMBER: 9900  
 FUNCTION MICROPROCESSOR  
 TECHNOLOGY IIL  
 RECORD 100092

MANUFACTURER TEXAS INSTRUMENTS  
 PART NUMBER SBP9900A  
 SPECIFICATION

LDC: NO. OF PARTS: 3 DATA SOURCE: JPL/RI/NWSC REF.NO.: 8

ION ANGLE ENERGY BIAS RUNS FLUENCE  
 KR 0 144MEV 3 1.6E7

ERROR CROSS SECTION LATCH CROSS SECTION  
 MAX MEAN MAX MEAN  
 \*1.3E-5 \*1.2E-5 NL

REMARKS: I(INU)=500MA; F=3MHZ \* CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

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\*\*\*\*\*  
GENERIC PART NUMBER: 9900  
\*\*\*\*\*

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\*\*\*\*\*

GENERIC PART NUMBER 9900  
-----  
FUNCTION MICROPROCESSOR  
-----  
TECHNOLOGY IIL  
-----  
RECORD 100093  
-----

MANUFACTURER TEXAS INSTRUMENTS  
-----  
PART NUMBER SBP9900A  
-----  
SPECIFICATION  
-----

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL/RI/NWSC REF.NO.: 8

ION ANGLE ENERGY BIAS RUNS FLUENCE  
-----  
KR 0 144MEV 1 4.8E6  
-----

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
-----  
\*1.E-5 \*1.E-5 NL  
-----

REMARKS: I(INJ)=507MA: F=.3MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT  
\*\*\*\*\*

GENERIC PART NUMBER 9900  
-----  
FUNCTION MICROPROCESSOR  
-----  
TECHNOLOGY IIL  
-----  
RECORD 100094  
-----

MANUFACTURER TEXAS INSTRUMENTS  
-----  
PART NUMBER SBP9900A  
-----  
SPECIFICATION  
-----

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL/RI/NWSC REF.NO.: 8

ION ANGLE ENERGY BIAS RUNS FLUENCE  
-----  
KR 0 144MEV 1 4.9E6  
-----

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
-----  
\*8.1E-6 \*8.1E-6 NL  
-----

REMARKS: I(INJ)=98MA: F=.3MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT  
\*\*\*\*\*

\*\*\*\*\*  
GENERIC PART NUMBER: 9900  
\*\*\*\*\*

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\*\*\*\*\*

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OF POOR QUALITY

RECORD --- 100095

## SPECIFICATION

REF. NO.: 8

FLUENCE  
-----  
1.9E6

SECTION	MEAN	NL
---------	------	----

REMARKS: I(INJ)=500MA: F=3.MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

RECORD  
100096

## SPECIFICATION

REF. NO. : 8

FLUENCE  
-----  
7.8E6

SECTION	MEAN	NL
---------	------	----

REMARKS: I(INJ)=500MA: F=3.MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

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GENERIC PART NUMBER: 9900

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GENERIC PART NUMBER 9900  
FUNCTION MICROPROCESSOR  
TECHNOLOGY IIL  
RECORD 100097

MANUFACTURER TEXAS INSTRUMENTS  
PART NUMBER SBP9900A  
SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL/RI/NWSC REF. NO.: 8

ION ANGLE ENERGY BIAS RUNS FLUENCE  
0 75 102MEV 1 1.6E6

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS: I(INJ)=500MA: F=3.MHZ

GENERIC PART NUMBER 9900  
FUNCTION MICROPROCESSOR  
TECHNOLOGY IIL  
RECORD 100098

MANUFACTURER TEXAS INSTRUMENTS  
PART NUMBER SBP9900A  
SPECIFICATION

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL/RI/NWSC REF. NO.: 8

ION ANGLE ENERGY BIAS RUNS FLUENCE  
0 80 102MEV 1 1.2E5

ERROR CROSS SECTION LATCH CROSS SECTION  
MAX MEAN MAX MEAN  
NE NL

REMARKS: I(INJ)=500MA: F=3.MHZ

GENERIC PART NUMBER: 9900

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
9900	MICROPROCESSOR	IIL	100099

MANUFACTURER	PART NUMBER	SPECIFICATION
TEXAS INSTRUMENTS	SBP9900A	

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL/RI/NWSC REF.NO.: 8

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
D	80	102MEV		1	1.2E6

ERROR	CROSS SECTION		LATCH CROSS SECTION	
	MAX	MEAN	MAX	MEAN
1	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000
9	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000
29	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000
31	0.000	0.000	0.000	0.000
32	0.000	0.000	0.000	0.000
33	0.000	0.000	0.000	0.000
34	0.000	0.000	0.000	0.000
35	0.000	0.000	0.000	0.000
36	0.000	0.000	0.000	0.000
37	0.000	0.000	0.000	0.000
38	0.000	0.000	0.000	0.000
39	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000
41	0.000	0.000	0.000	0.000
42	0.000	0.000	0.000	0.000
43	0.000	0.000	0.000	0.000
44	0.000	0.000	0.000	0.000
45	0.000	0.000	0.000	0.000
46	0.000	0.000	0.000	0.000
47	0.000	0.000	0.000	0.000
48	0.000	0.000	0.000	0.000
49	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000
51	0.000	0.000	0.000	0.000
52	0.000	0.000	0.000	0.000
53	0.000	0.000	0.000	0.000
54	0.000	0.000	0.000	0.000
55	0.000	0.000	0.000	0.000
56	0.000	0.000	0.000	0.000
57	0.000	0.000	0.000	0.000
58	0.000	0.000	0.000	0.000
59	0.000	0.000	0.000	0.000
60	0.000	0.000	0.000	0.000
61	0.000	0.000	0.000	0.000
62	0.000	0.000	0.000	0.000
63	0.000	0.000	0.000	0.000
64	0.000	0.000	0.000	0.000
65	0.000	0.000	0.000	0.000
66	0.000	0.000	0.000	0.000
67	0.000	0.000	0.000	0.000
68	0.000	0.000	0.000	0.000

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REMARKS: I(INJ)=500MA: F=3MHZ

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
9989	MICROPROCESSOR	IIL	100100

MANUFACTURER	PART NUMBER	SPECIFICATION
TEXAS INSTRUMENTS	SBP9989	

NO. OF PARTS: 2 DATA SOURCE: JPL/RI/NWSC

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	0	144MEV		2	8.3E6

	ERROR CROSS SECTION		LATCH CROSS SECTION	
	MAX	MEAN	MAX	MEAN
1	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000
31	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000
33	0.0000	0.0000	0.0000	0.0000
34	0.0000	0.0000	0.0000	0.0000
35	0.0000	0.0000	0.0000	0.0000
36	0.0000	0.0000	0.0000	0.0000
37	0.0000	0.0000	0.0000	0.0000
38	0.0000	0.0000	0.0000	0.0000
39	0.0000	0.0000	0.0000	0.0000
40	0.0000	0.0000	0.0000	0.0000
41	0.0000	0.0000	0.0000	0.0000
42	0.0000	0.0000	0.0000	0.0000
43	0.0000	0.0000	0.0000	0.0000
44	0.0000	0.0000	0.0000	0.0000
45	0.0000	0.0000	0.0000	0.0000
46	0.0000	0.0000	0.0000	0.0000
47	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000
49	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000
51	0.0000	0.0000	0.0000	0.0000
52	0.0000	0.0000	0.0000	0.0000
53	0.0000	0.0000	0.0000	0.0000
54	0.0000	0.0000	0.0000	0.0000
55	0.0000	0.0000	0.0000	0.0000
56	0.0000	0.0000	0.0000	0.0000
57	0.0000	0.0000	0.0000	0.0000
58	0.0000	0.0000	0.0000	0.0000
59	0.0000	0.0000	0.0000	0.0000
60	0.0000	0.0000	0.0000	0.0000
61	0.0000	0.0000	0.0000	0.0000
62	0.0000	0.0000	0.0000	0.0000
63	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	

\*1.2E-4 \*6.8E-5 NI

REMARKS: I(INJ)=400MA: F=3.MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

GENERIC PART NUMBER: 3989

GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
9989	MICROPROCESSOR	IIL	100101

MANUFACTURER	PART NUMBER	SPECIFICATION
TEXAS INSTRUMENTS	SBP9989	

LDC: NO. OF PARTS: 2 DATA SOURCE: JPL/RI/NWSC REF.NO.: 8

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	60	144MEV		2	3.9E5

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
*3.6E-4	*2.6E-4
	NL

REMARKS: I(INJ)=400MA: F=3.MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
9989	MICROPROCESSOR	IIL	100102

MANUFACTURER	PART NUMBER	SPECIFICATION
TEXAS INSTRUMENTS	SBP9989	

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL/RI/NWSC REF.NO.: 8

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	60	144MEV		1	5.7E5

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
*1.8E-4	*1.8E-4
	NL

REMARKS: I(INJ)=400MA: F=.3MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

GENERIC PART NUMBER: 9989  
 FUNCTION: MICROPROCESSOR  
 TECHNOLOGY: IIL  
 RECORD: 100103

MANUFACTURER: TEXAS INSTRUMENTS  
 PART NUMBER: SBP9989  
 SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL/RI/NWSC REF.NO.: 8

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
KR	60	144MEV		1	1.9E5

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
*2.6E-4	*2.6E-4		NL

REMARKS: I(INJ)=90MA: F=.3MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

GENERIC PART NUMBER: 9989  
 FUNCTION: MICROPROCESSOR  
 TECHNOLOGY: IIL  
 RECORD: 100104

MANUFACTURER: TEXAS INSTRUMENTS  
 PART NUMBER: SBP9989  
 SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL/RI/NWSC REF.NO.: 8

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
O	0	102MEV		1	5.6E6

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
*3.6E-7	*3.6E-7		NL

REMARKS: I(INJ)=400MA: F=3.MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

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 GENERIC PART NUMBER  
 -----  
 9989  
 -----  
 FUNCTION  
 -----  
 MICROPROCESSOR  
 -----  
 TECHNOLOGY  
 -----  
 IIL  
 -----  
 RECORD  
 -----  
 100105  
 -----

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 MANUFACTURER  
 -----  
 TEXAS INSTRUMENTS  
 -----  
 PART NUMBER  
 -----  
 SBP9989  
 -----  
 SPECIFICATION  
 -----

LDC: NO. OF PARTS: 2 DATA SOURCE: JPL/RI/NWSC REF.NO.: 8

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
0	80	102MEV		2	1.4E7

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
*1.5E-5	*1.4E-5		NL

REMARKS: I(INJ)=400MA: F=3.MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

-----  
 GENERIC PART NUMBER  
 -----  
 9989  
 -----  
 FUNCTION  
 -----  
 MICROPROCESSOR  
 -----  
 TECHNOLOGY  
 -----  
 IIL  
 -----  
 RECORD  
 -----  
 100106  
 -----

-----  
 MANUFACTURER  
 -----  
 TEXAS INSTRUMENTS  
 -----  
 PART NUMBER  
 -----  
 SBP9989  
 -----  
 SPECIFICATION  
 -----

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL/RI/NWSC REF.NO.: 8

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
0	0	102MEV		1	5.4E6

ERROR CROSS SECTION		LATCH CROSS SECTION	
MAX	MEAN	MAX	MEAN
*5.6E-7	*5.6E-7		NL

REMARKS: I(INJ)=400MA: F=3.MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

GENERIC PART NUMBER: 9989  
 FUNCTION: MICROPROCESSOR  
 TECHNOLOGY: IIL  
 RECORD: 100107

MANUFACTURER: TEXAS INSTRUMENTS  
 PART NUMBER: SBP9989  
 SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL/RI/NWSC REF.NO.: 8

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
0	60	102MEV		1	2.1E6

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
*2.4E-6	*2.4E-6
	NL

REMARKS: I(INJ)=400MA: F=3.MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

GENERIC PART NUMBER: 9989  
 FUNCTION: MICROPROCESSOR  
 TECHNOLOGY: IIL  
 RECORD: 100108

MANUFACTURER: TEXAS INSTRUMENTS  
 PART NUMBER: SBP9989  
 SPECIFICATION:

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL/RI/NWSC REF.NO.: 8

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
0	70	102MEV		1	9.2E5

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
*1.3E-5	*1.3E-5
	NL

REMARKS: I(INJ)=400MA: F=3.MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP, NOT PER BIT

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GENERIC PART NUMBER: 9989  
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GENERIC PART NUMBER	FUNCTION	TECHNOLOGY	RECORD
9989	MICROPROCESSOR	III	100109
MANUFACTURER	PART NUMBER	SPECIFICATION	
TEXAS INSTRUMENTS	SBP9989		

LDC: NO. OF PARTS: 1 DATA SOURCE: JPL/RI/NWSC REF. NO.: 8

ION	ANGLE	ENERGY	BIAS	RUNS	FLUENCE
0	75	102MEV		1	1.E6

ERROR CROSS SECTION	LATCH CROSS SECTION
MAX	MAX
MEAN	MEAN
*5.9E-6	*5.9E-6
	NL

REMARKS: I(INJ)=400MA: F=3.MHZ \*CROSS SEC. IN ERRORS/PARTICLE/CHIP. NOT PER BIT

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GENERIC PART NUMBER: 9989  
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